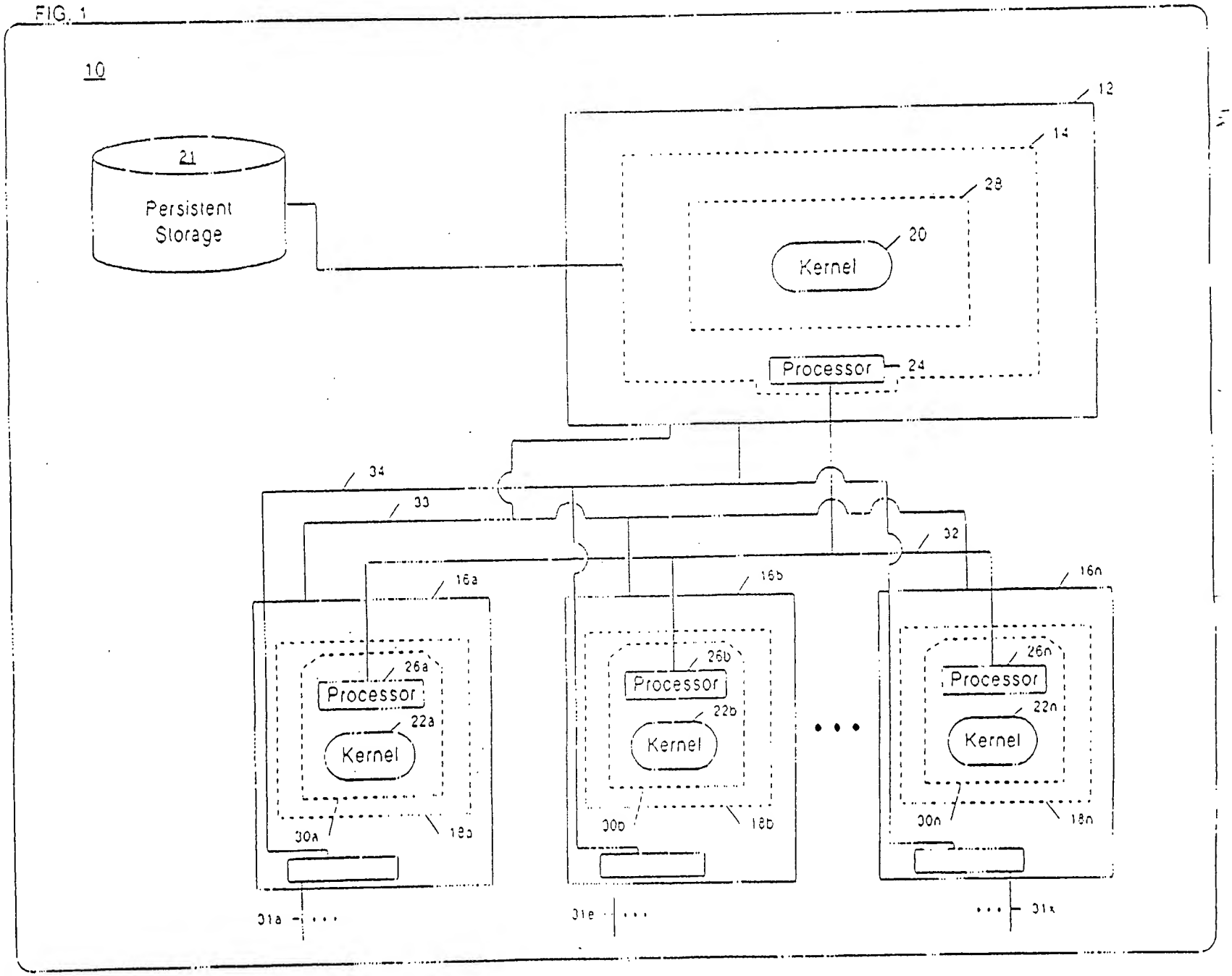
FIG. 1


10
12
14
28
20
Kernel
Processor
24
21
Persistent Storage
34
33
32
16a
16b
16n
26a
Processor
22a
Kernel
30a
18a
26b
Processor
22b
Kernel
30b
18b
26n
Processor
22n
Kernel
30n
18n
31a
31e
31x

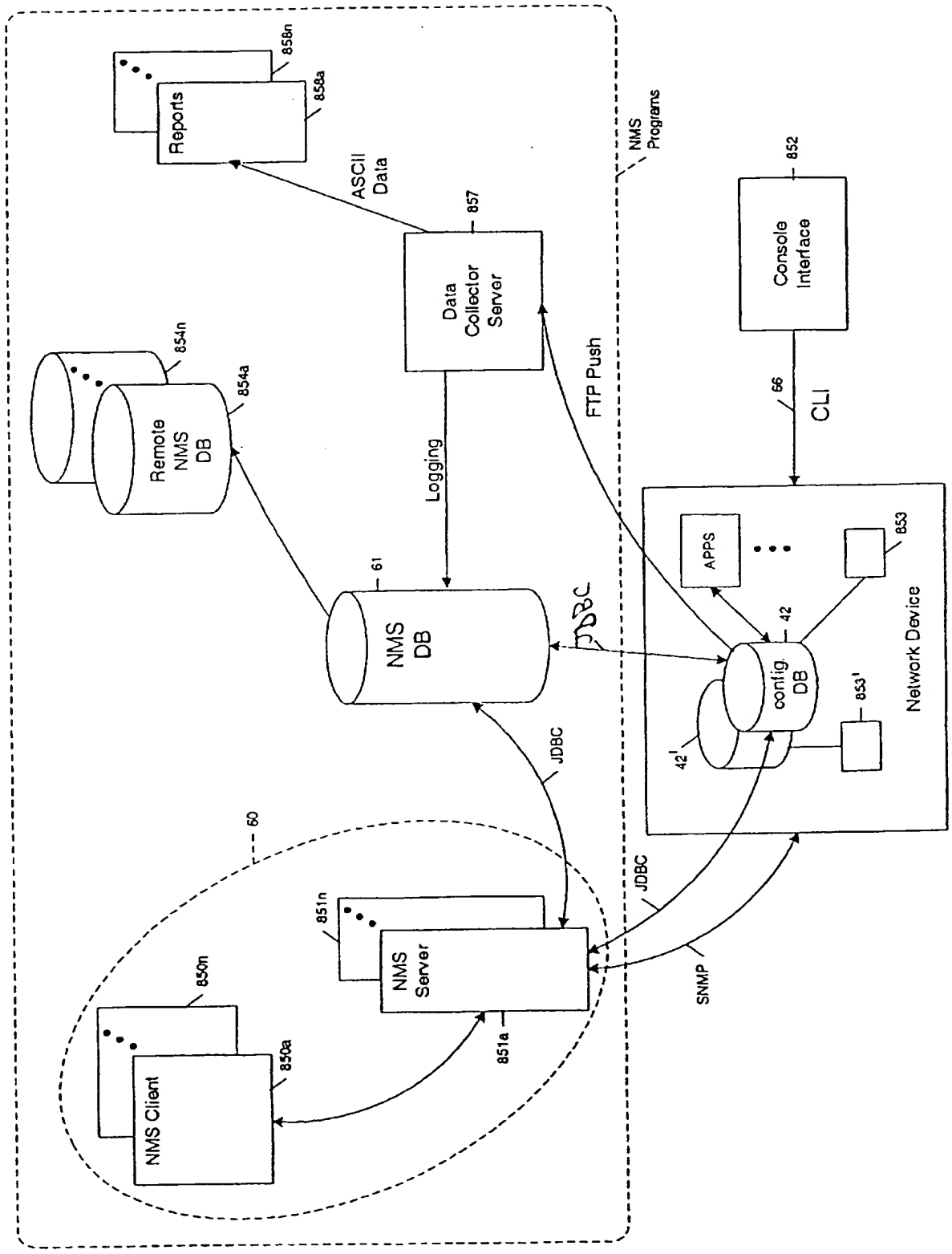

Reports
858n
858a
ASCII Data
Data Collector Server
857
NMS Programs
852
Console Interface
66
CLI
FTP Push
Logging
Remote NMS DB
854n
854a
NMS DB
61
JDBC
APPS
853
Network Device
42
config DB
42'
853'
60
NMS Server
851n
851a
NMS Client
850n
850a
SNMP

Fig. 2a

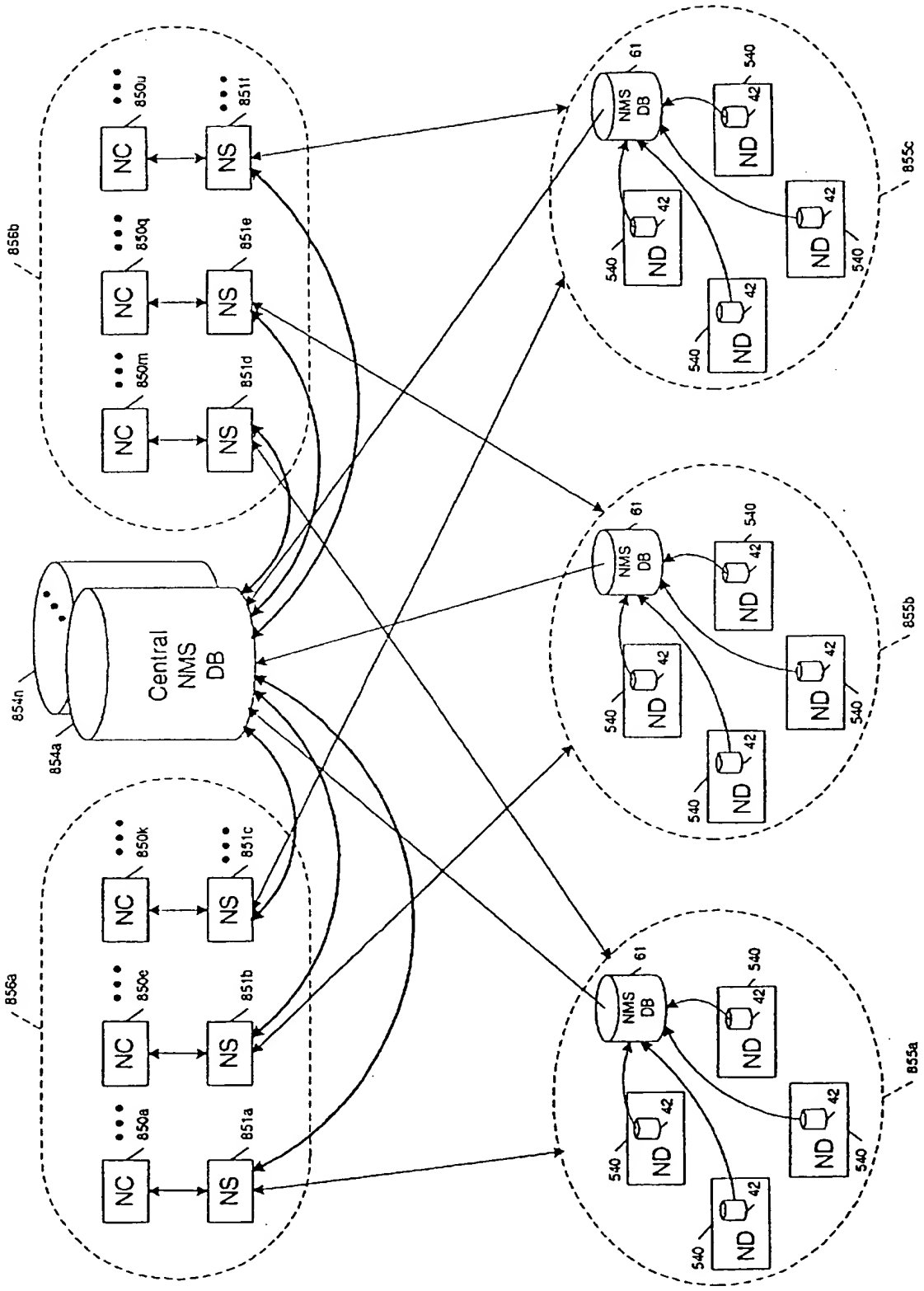

Central NMS DB
854n
854a
856a
856b
NC
NS
850a
850e
850k
850m
850q
850u
851a
851b
851c
851d
851e
851l
855a
855b
855c
NMS DB
61
ND
42
540

Fig. 2b

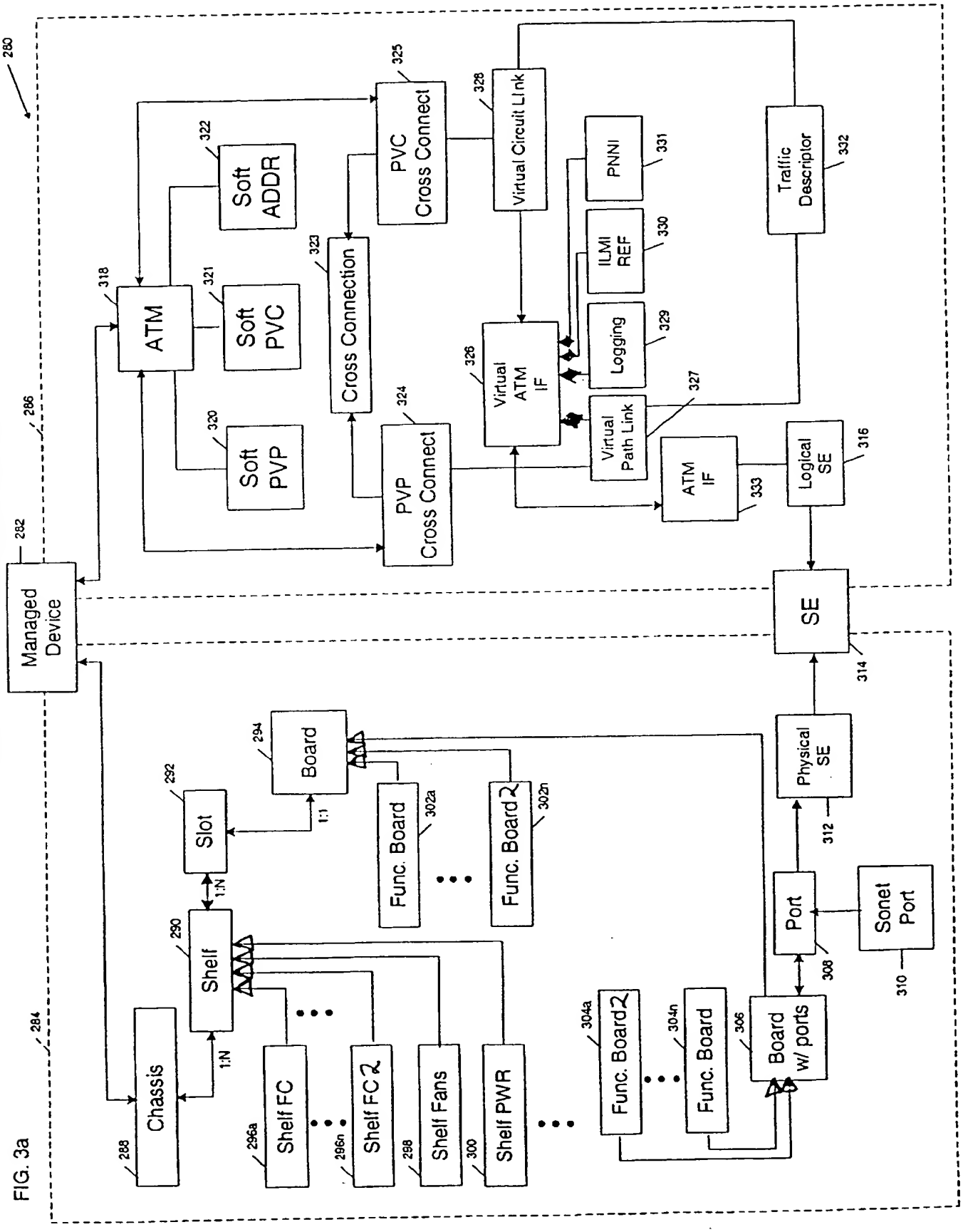

280
Managed Device
282
286
ATM
318
Soft PVC
321
Soft ADDR
322
Soft PVP
320
Cross Connection
323
PVC Cross Connect
325
PVP Cross Connect
324
Virtual Circuit Link
328
Virtual ATM IF
326
Virtual Path Link
327
PNNI
331
ILMI REF
330
Logging
329
Traffic Descriptor
332
ATM IF
333
Logical SE
316
SE
314
Physical SE
312
Port
308
Sonet Port
310
Board w/ ports
306
Board
294
Slot
292
1:1
1:N
Shelf
290
Chassis
288
Func. Board
302a
Func. Board2
302n
Func. Board2
304a
Func. Board
304n
Shelf FC
296a
Shelf FC2
296n
Shelf Fans
298
Shelf PWR
300
284

FIG. 3a

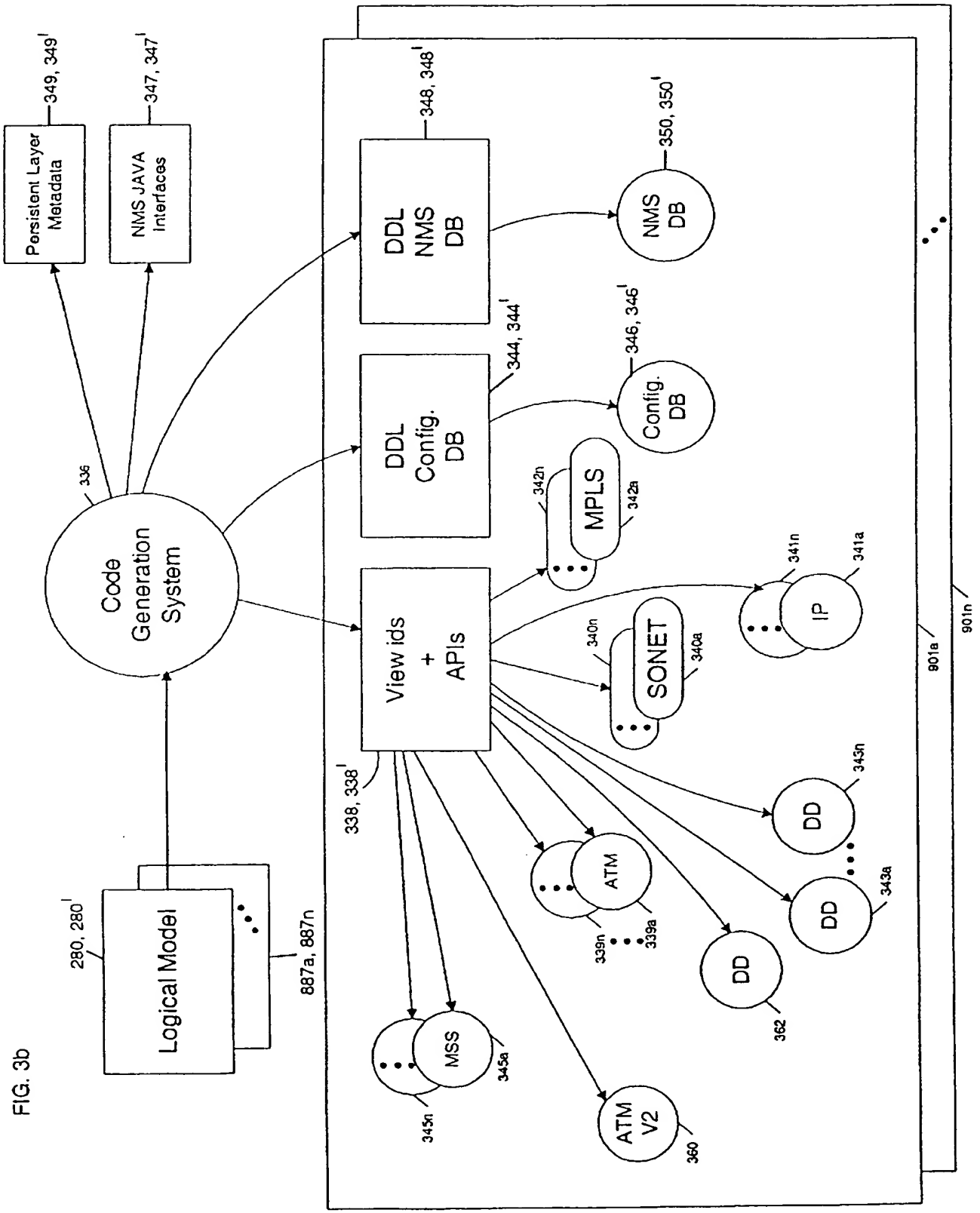

Persistent Layer Metadata
349, 349'
NMS JAVA Interfaces
347, 347'
Code Generation System
336
Logical Model
280, 280'
887a, 887n
DDL NMS DB
348, 348'
DDL Config. DB
344, 344'
View ids + APIs
338, 338'
NMS DB
350, 350'
Config. DB
346, 346'
MPLS
342n
342a
SONET
340n
340a
IP
341n
341a
ATM
339n
339a
DD
343n
DD
343a
DD
362
MSS
345n
345a
ATM V2
360
901a
901n

FIG. 3b

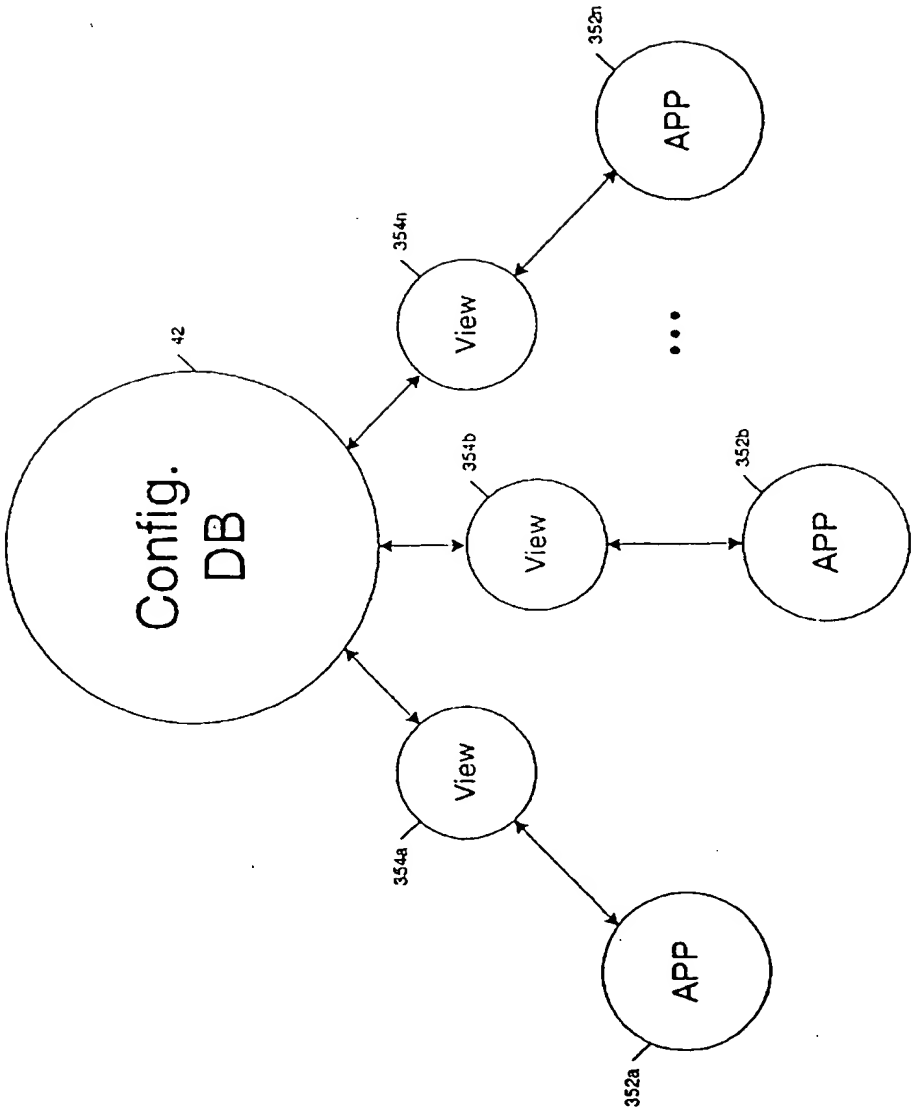
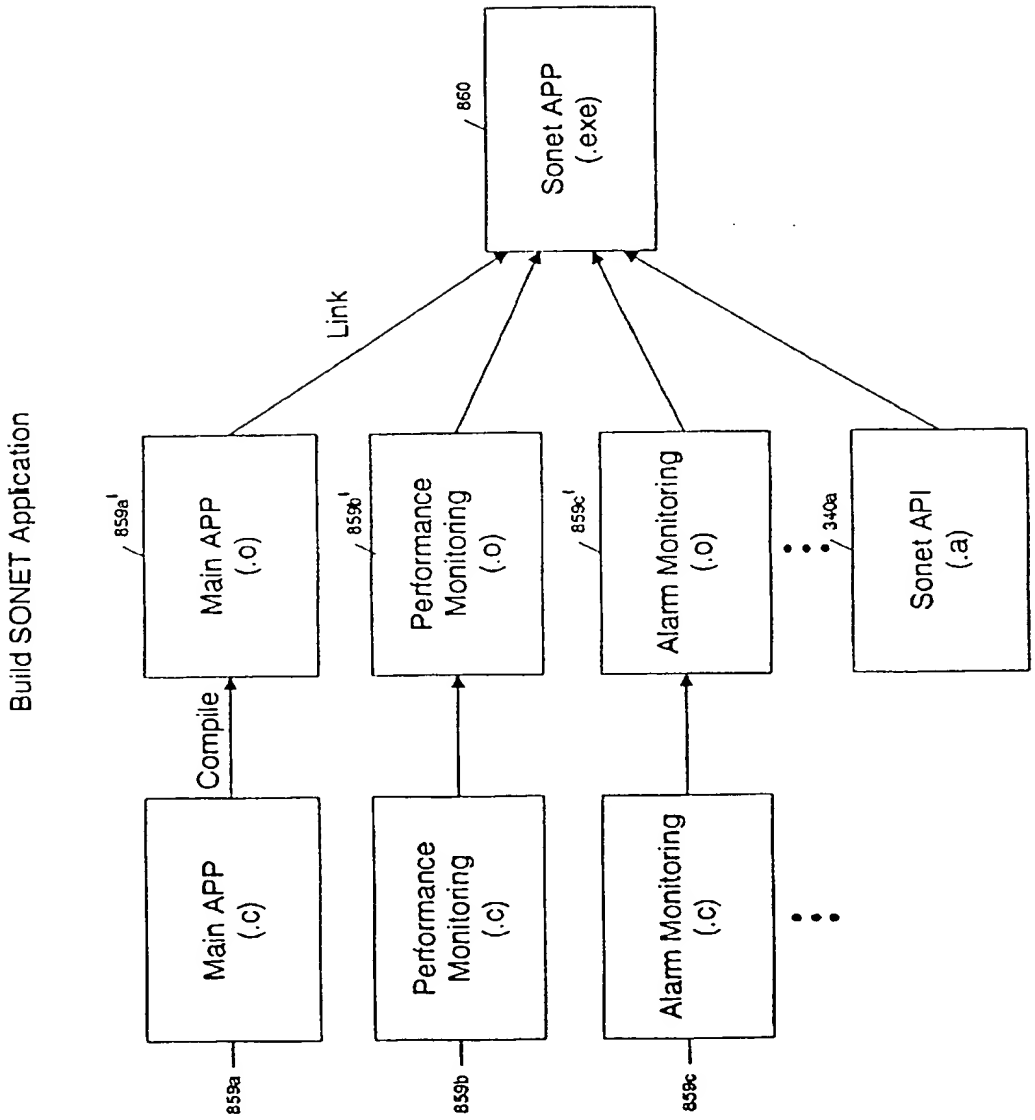

Config. DB
42
View
354a
View
354b
View
354n
APP
352a
APP
352b
APP
352n

FIG. 3c

Fig. 3d


Build SONET Application
Main APP (.c)
Compile
Main APP (.o)
Performance Monitoring (.c)
Performance Monitoring (.o)
Alarm Monitoring (.c)
Alarm Monitoring (.o)
Sonet API (.a)
Link
Sonet APP (.exe)
859a
859b
859c
859a'
859b'
859c'
340a
860

0076804 "176569

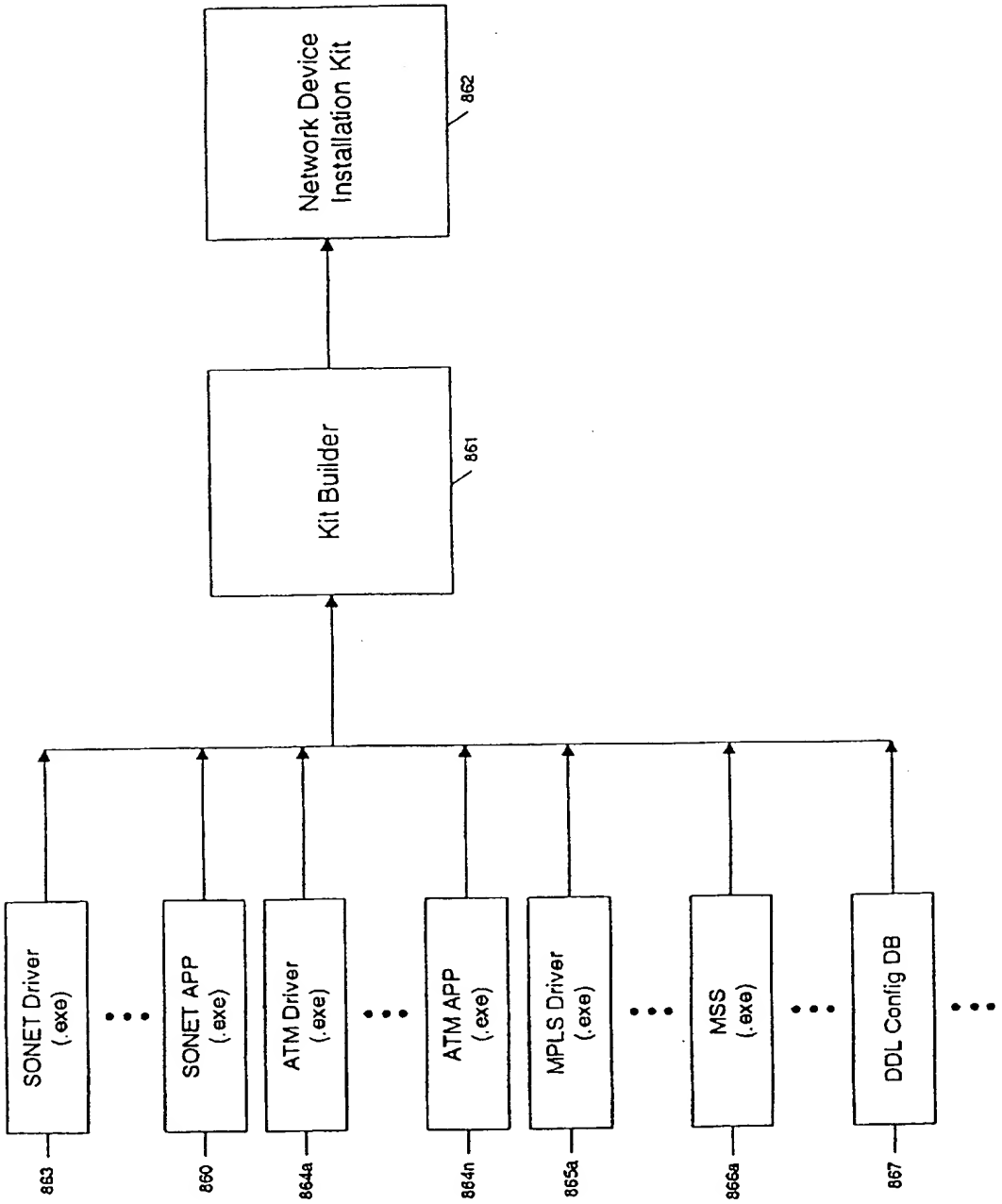


Fig. 3e

00TE80" ST6TS960

Fig. 3F

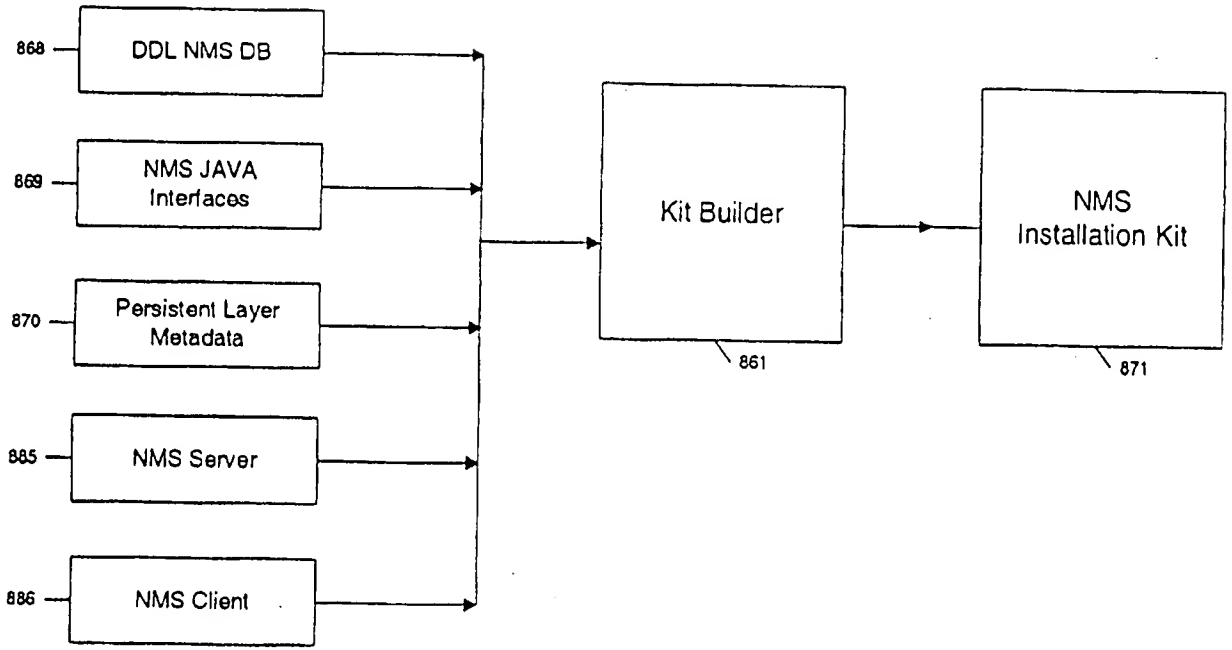
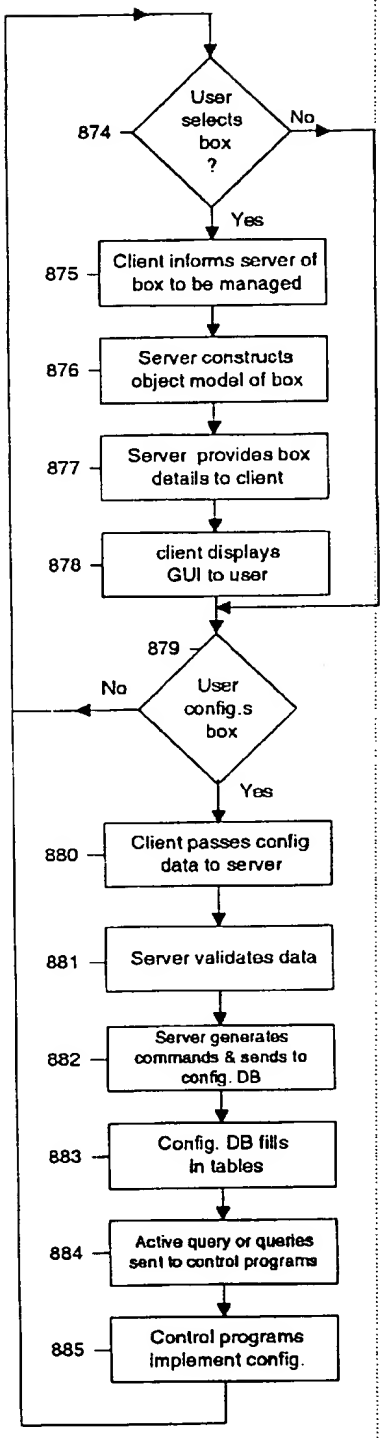


Fig. 3g



09654845 - 083400

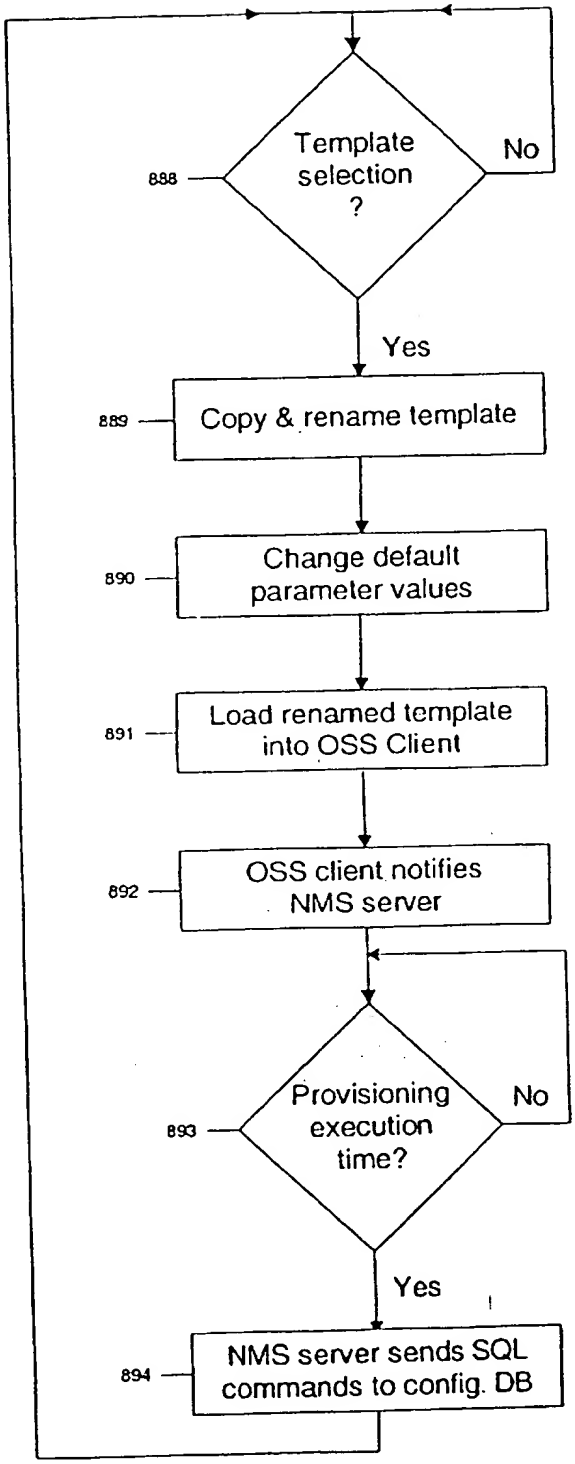


Fig. 3h

09534935.083100

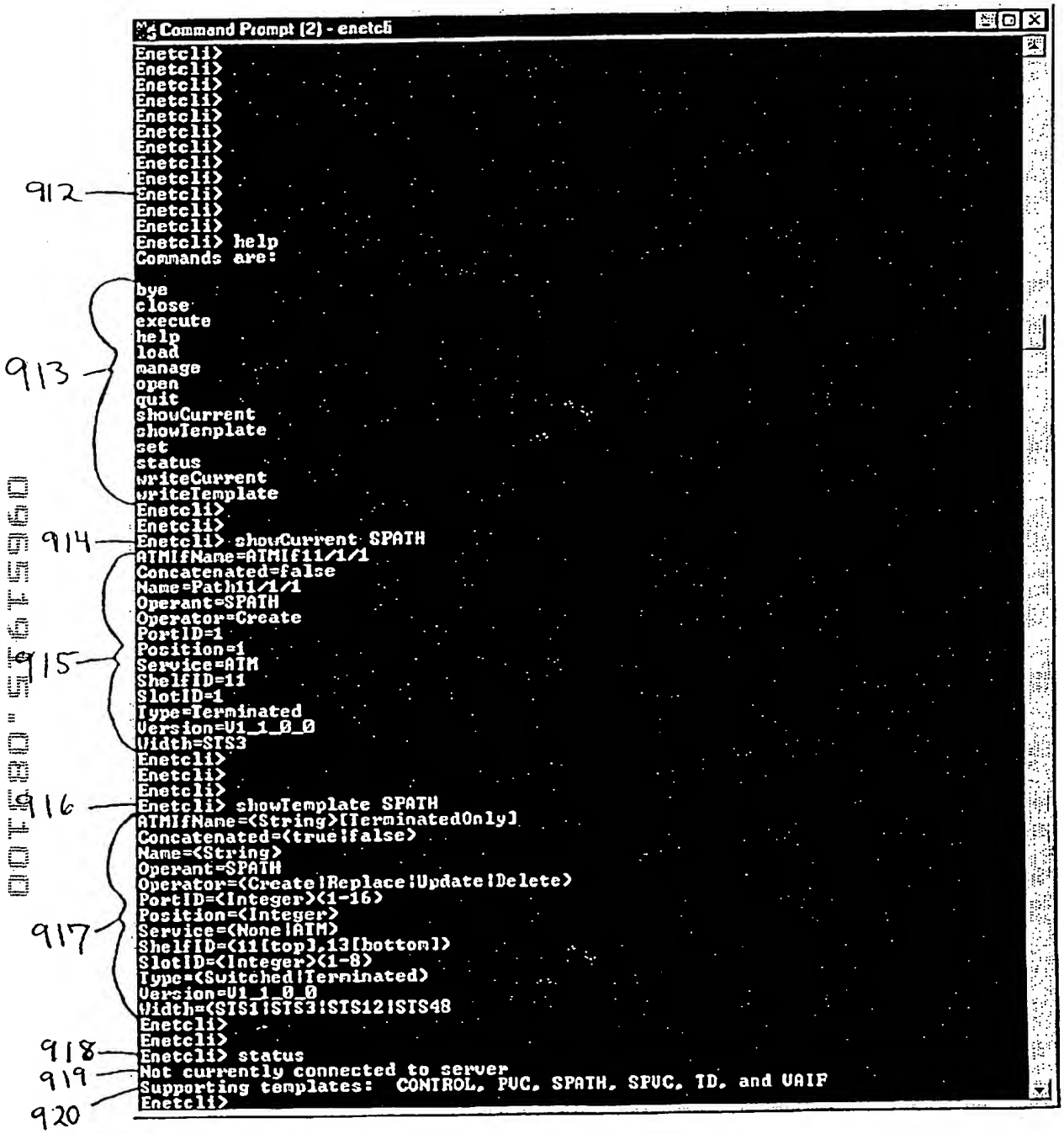

Command Prompt (2) - enetcli
Enetcli>
Enetcli> help
Commands are:
bye
close
execute
help
load
manage
open
quit
showCurrent
showTemplate
set
status
writeCurrent
writeTemplate
Enetcli> showCurrent SPATH
ATMIfName=ATMIf11/1/1
Concatenated=false
Name=Path11/1/1
Operant=SPATH
Operator=Create
PortID=1
Position=1
Service=ATM
ShelfID=11
SlotID=1
Type=Terminated
Version=V1_1_0_0
Width=STS3
Enetcli> showTemplate SPATH
ATMIfName=<String>[TerminatedOnly]
Concatenated=<true|false>
Name=<String>
Operant=SPATH
Operator=<Create|Replace|Update|Delete>
PortID=<Integer><1-16>
Position=<Integer>
Service=<None|ATM>
ShelfID=<11[top],13[bottom]>
SlotID=<Integer><1-8>
Type=<Switched|Terminated>
Version=V1_1_0_0
Width=<STS1|STS3|STS12|STS48
Enetcli> status
Not currently connected to server
Supporting templates: CONTROL, PVC, SPATH, SPVC, TD, and VAIF
Enetcli>
912
913
914
915
916
917
918
919
920

Fig. 3i

Fig. 3j

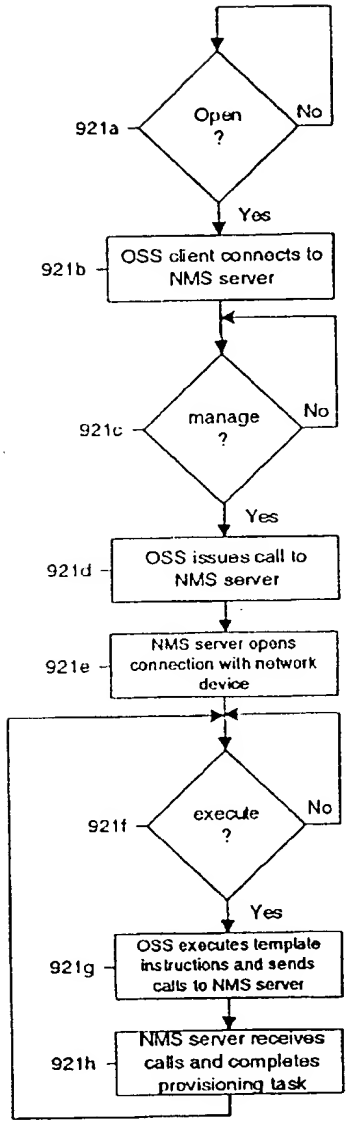
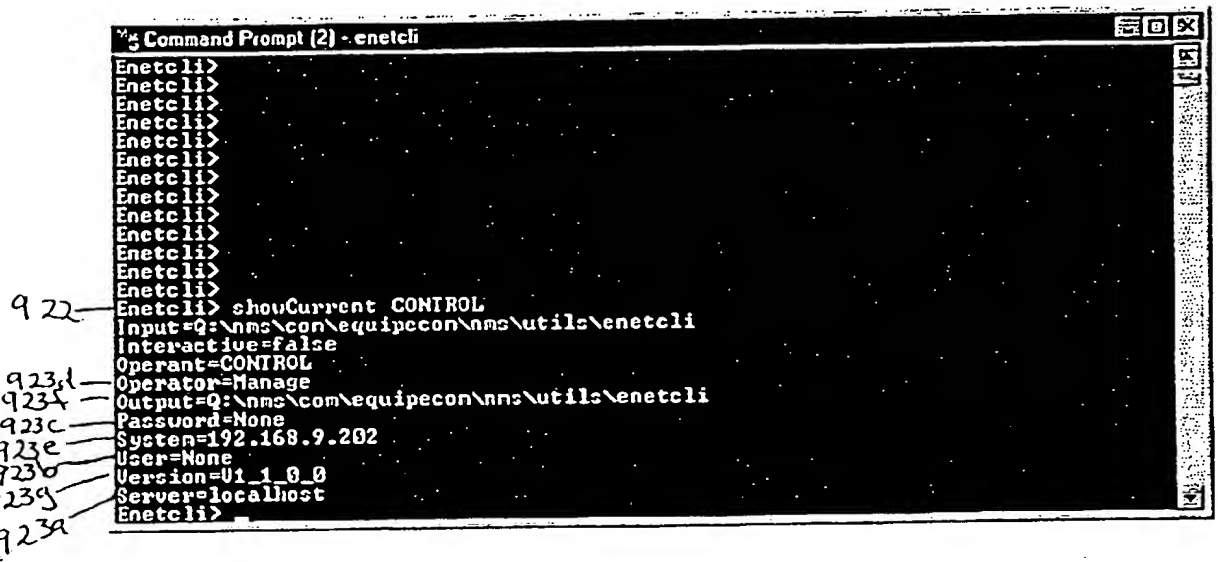

921a
Open ?
No
Yes
921b
OSS client connects to NMS server
921c
manage ?
No
Yes
921d
OSS issues call to NMS server
921e
NMS server opens connection with network device
921f
execute ?
No
Yes
921g
OSS executes template instructions and sends calls to NMS server
921h
NMS server receives calls and completes provisioning task

Fig. 3K



0905150805-080300

Fig. 3L

924 BATCH

Operant=BATCH
Operator=Execute
Version=V1_1_0_0
924a — Task1=execute-SPATH
924b — Task2=execute-PVC
924c — Task3=execute-SPVC
924d — Task4=load-SPVC-spvc1
924e — Task5=execute-SPVC
924f — Task6=load-SPVC-spvc2
924g — Task7=execute-SPVC
.
.
.
924g — Task50=set-SPATH-PortID-3
924h — Task51=execute-SPATH
924i — Task52=set-SPATH-SlotID-2
924j — Task53=execute-SPATH

D0954750.0830

Fig. 3M

925

Operant=BATCH
Operator=Execute
-- Version=V1_1_0_0
925a —Task1=execute-CONTROL
925b —Task2=execute-SPATH
925c —Task3=set-SPATH-PortID-3
925d —Task4=execute-SPATH
.
.
.
925e —Task61=set-CONTROL-System-192.168.9.201
925f —Task62=execute-CONTROL
925g —Task63=execute-SPATH
.
.
.
925h —Task108=close
925i —Task109=set-CONTROL-Server-Server1
925j —Task110=set-CONTROL-System-192.168.8.200
925k —Task111=execute-CONTROL
925l —Task112=execute-SPATH
.
.
.

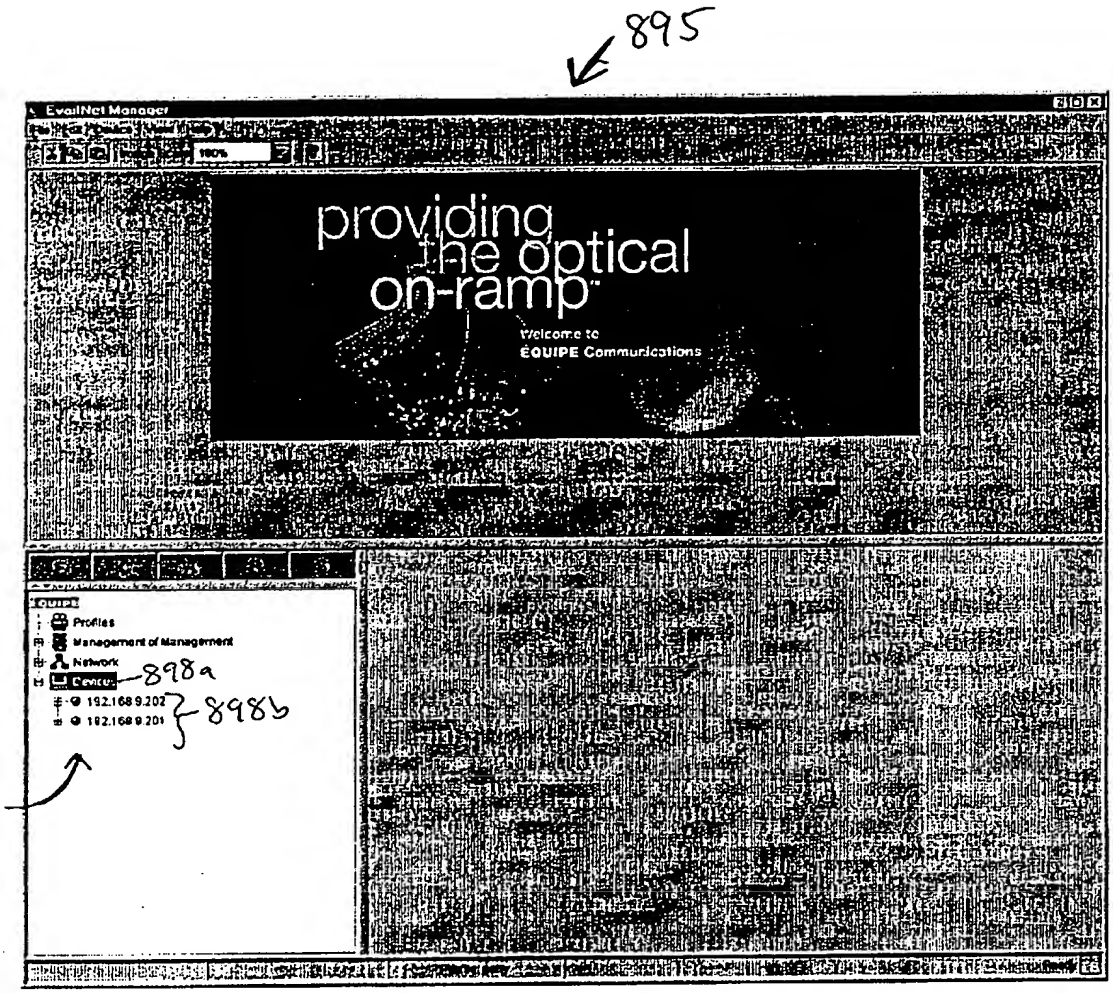


Fig. 4a

09654315.060100

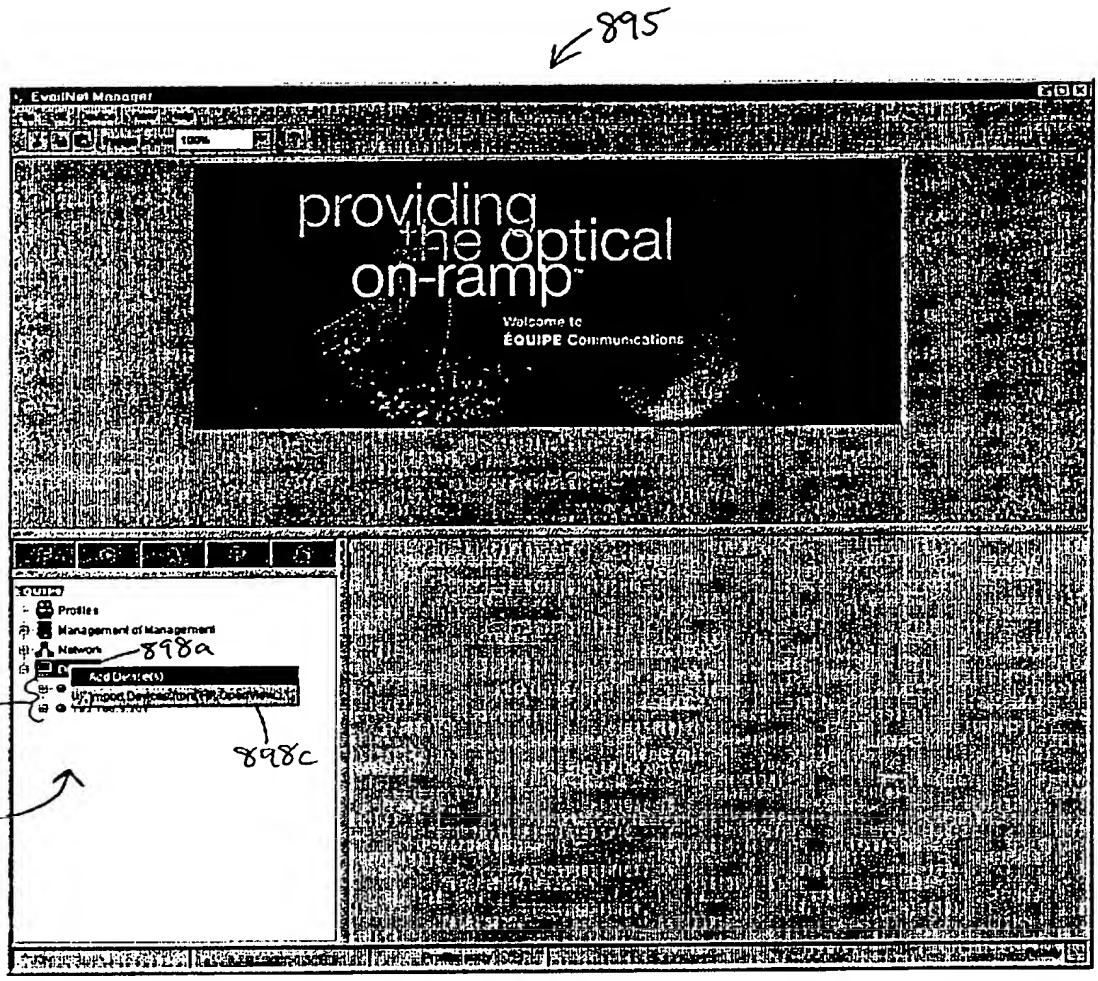


Fig. 4b

0078680-5169500

Fig. 4c

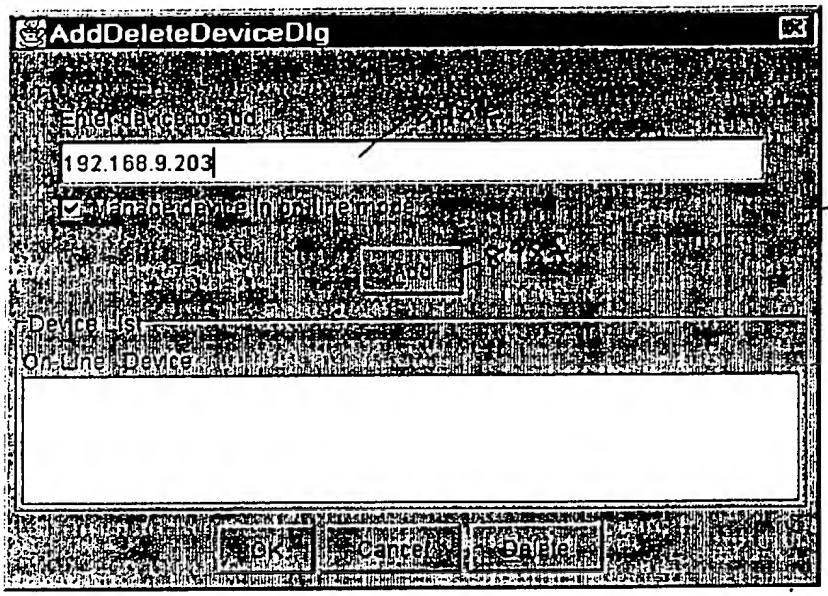
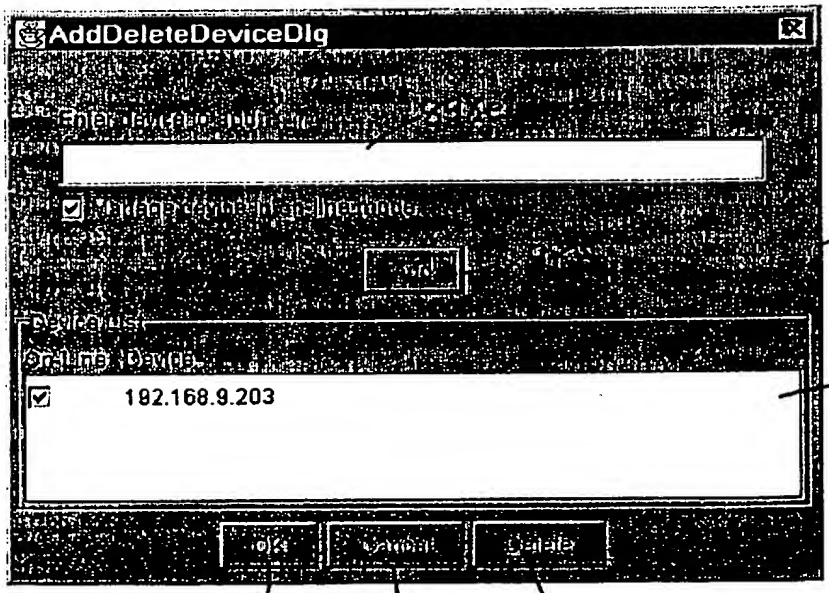

AddDeleteDeviceDlg
192.168.9.203
898d
Device List
On-Line Device
OK
Cancel
Delete

Fig. 4d


AddDeleteDeviceDlg
898d
On-Line Device
192.168.9.203
898g
OK
Cancel
Delete
898j
898i
898h

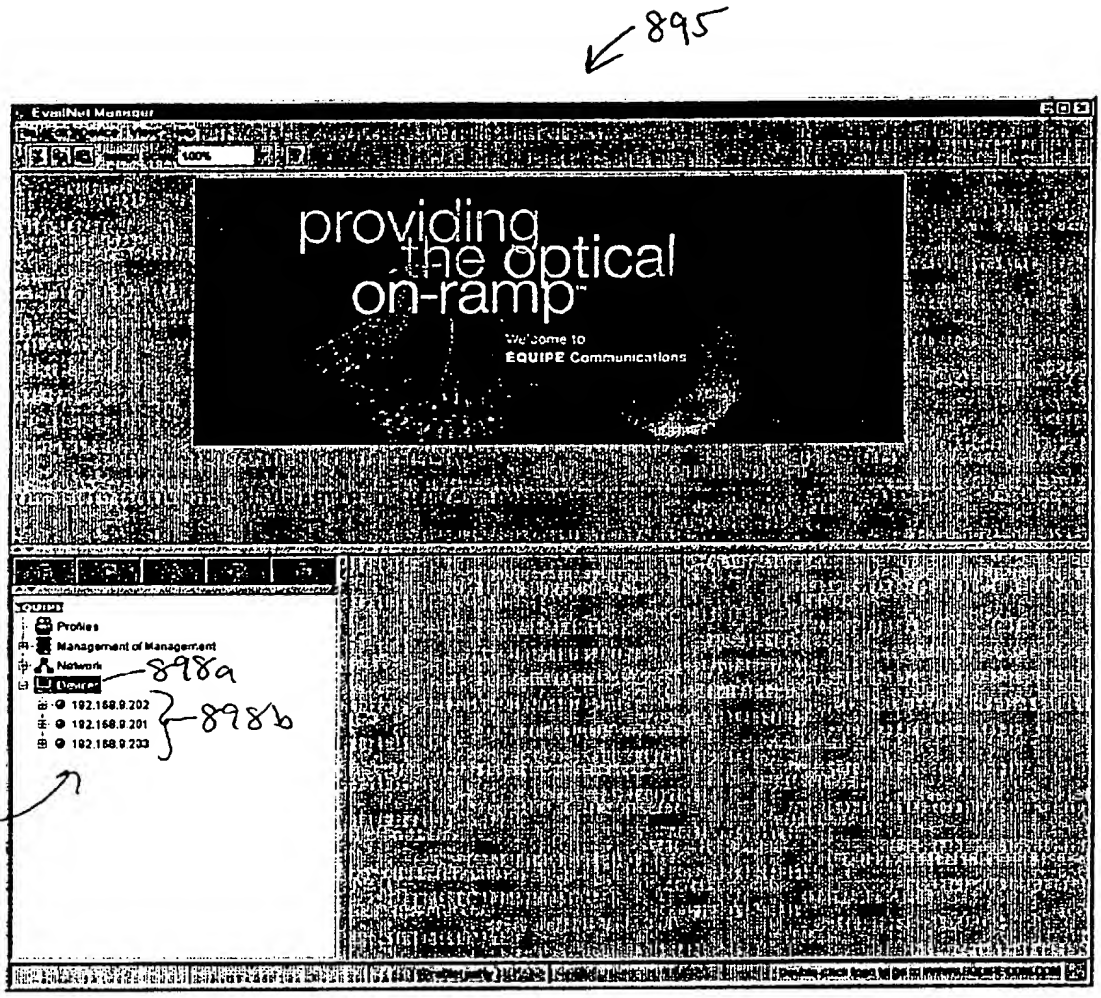


Fig. 4e

0054680 - 0154680

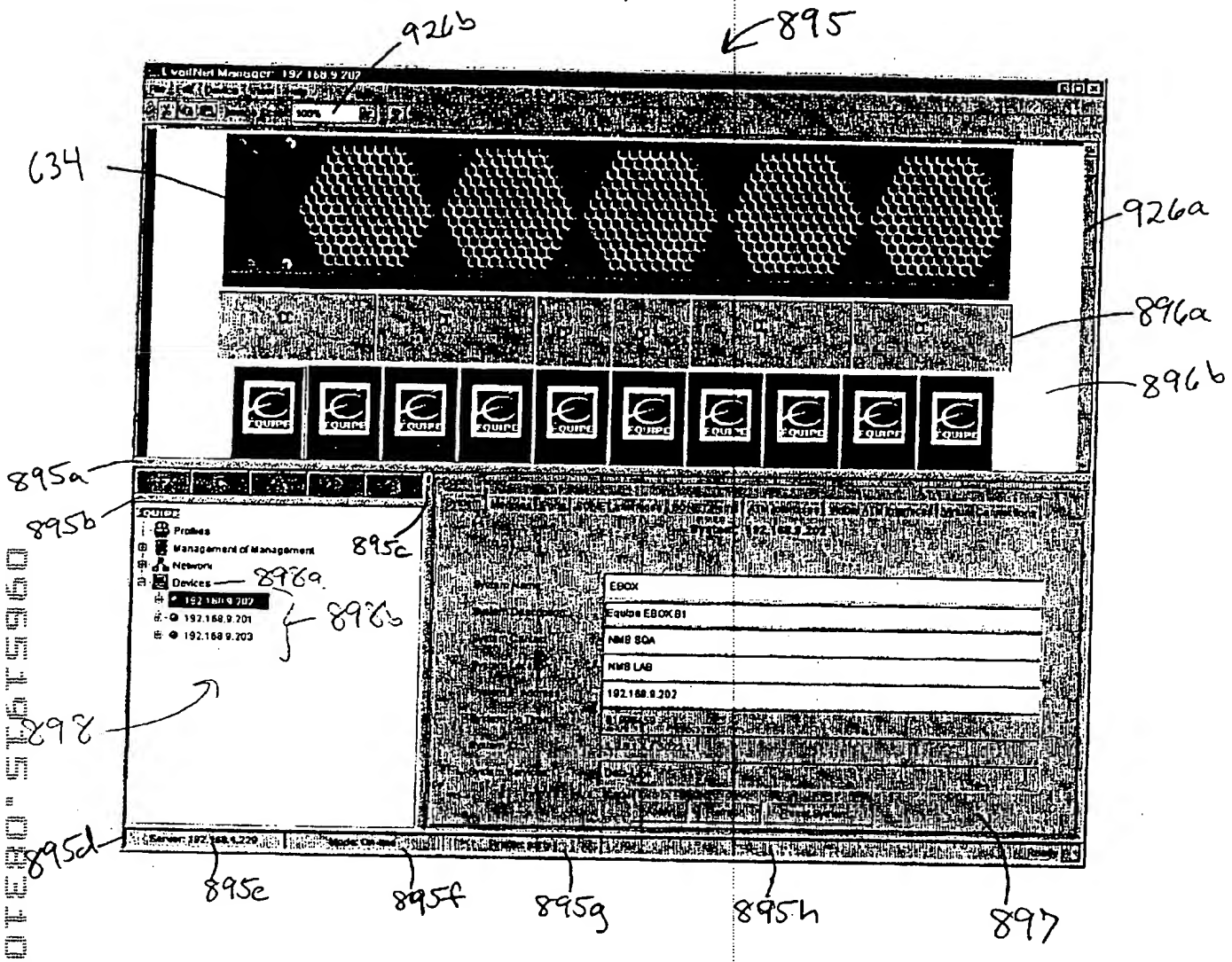

926b
895
634
926a
896a
896b
895a
895b
895c
896a
896b
898
895d
895e
895f
895g
895h
897
Profiles
Management of Management
Network
Devices
192.168.9.201
192.168.9.203
EBOX
Equipe EBOX 81
NMS SQA
NMS LAB
192.168.9.202

Fig. 4f

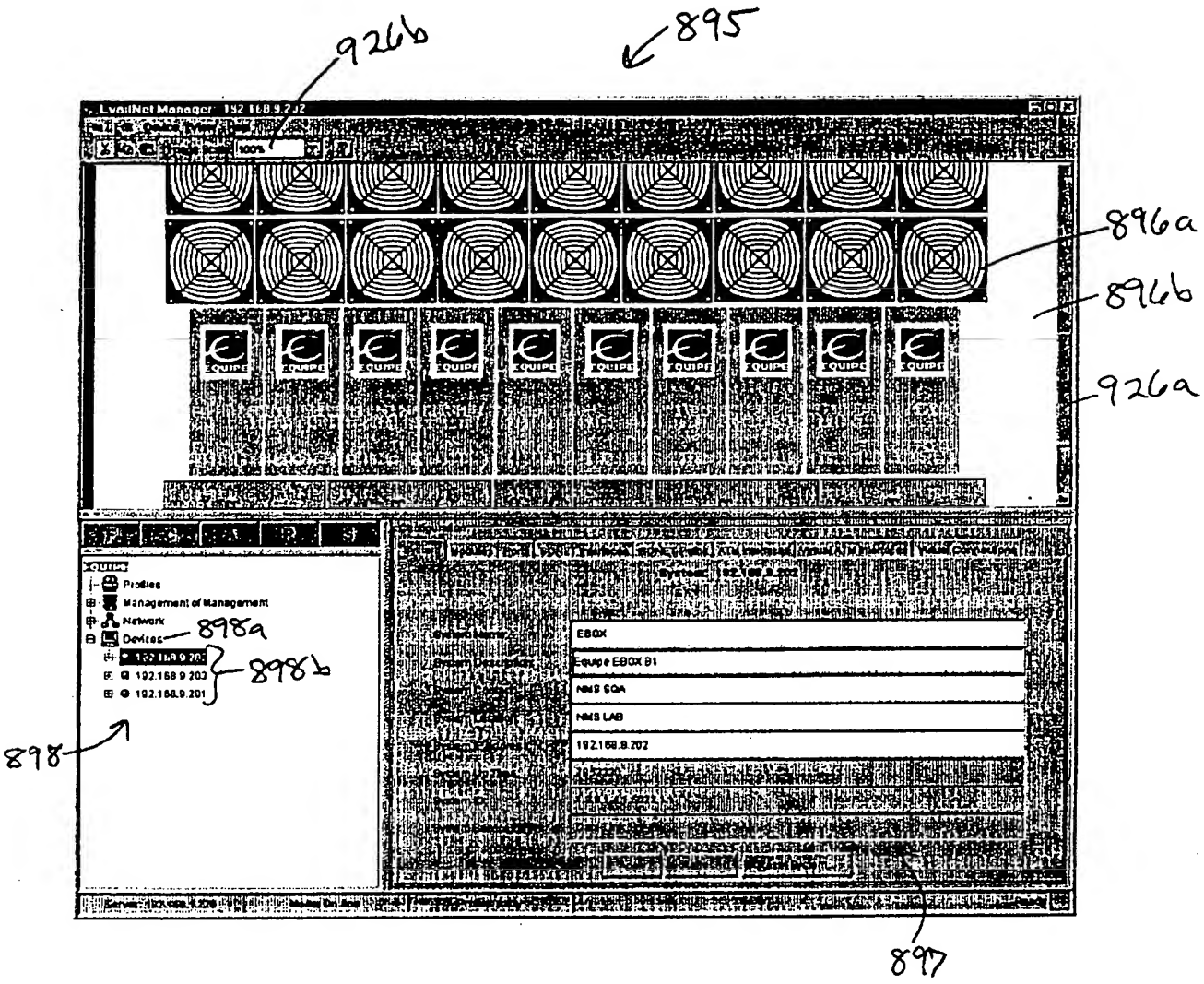


Fig. 4g

09515.0034-00400

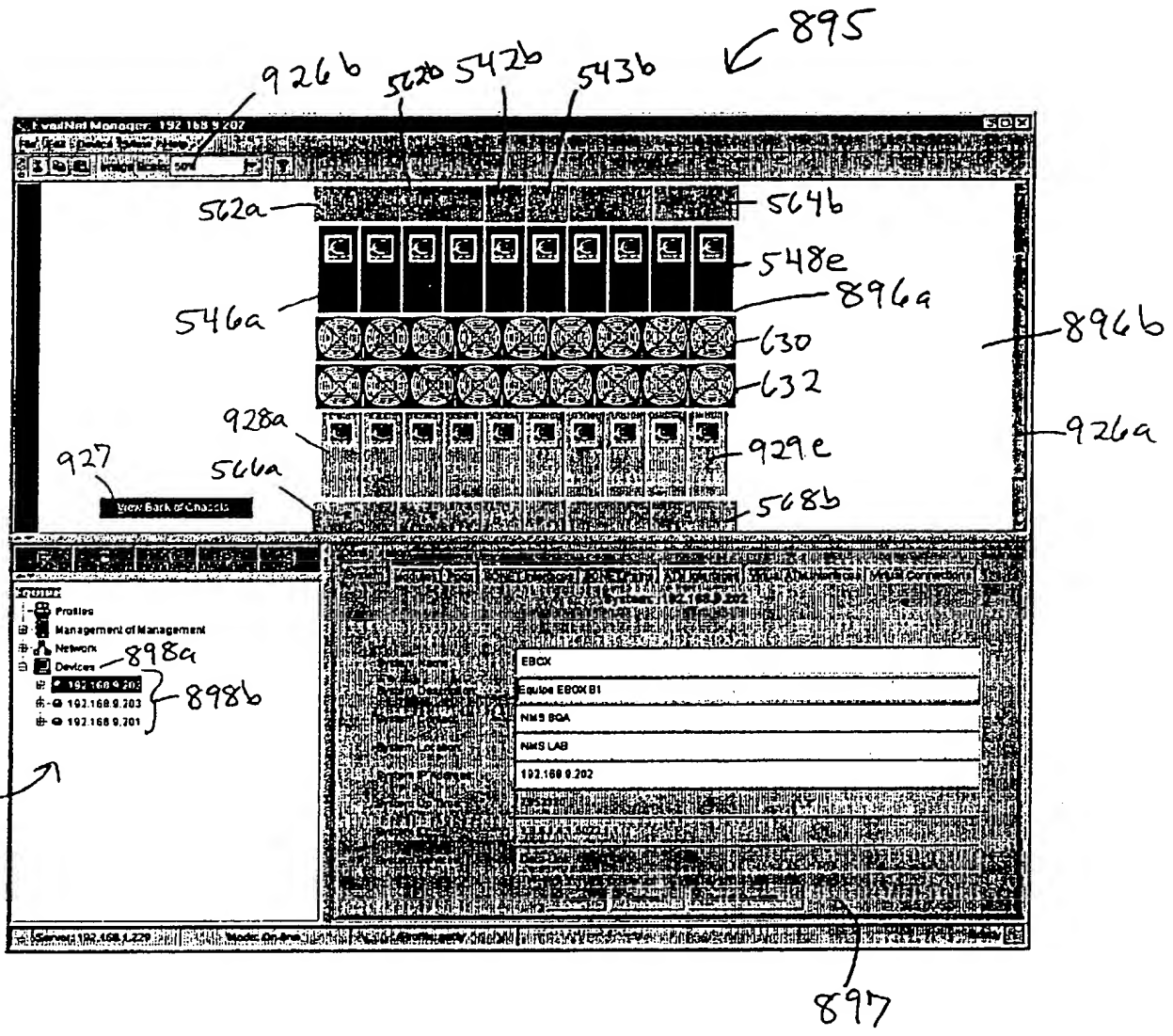

895
926b
562b
542b
543b
562a
564b
548e
546a
896a
896b
630
632
928a
926a
929e
927
566a
568b
View Rack or Chassis
898a
898b
898
897
EBCX
Equipe EBCX B1
NMS BQA
NMS LAB
192.168.9.202

Fig. 4h

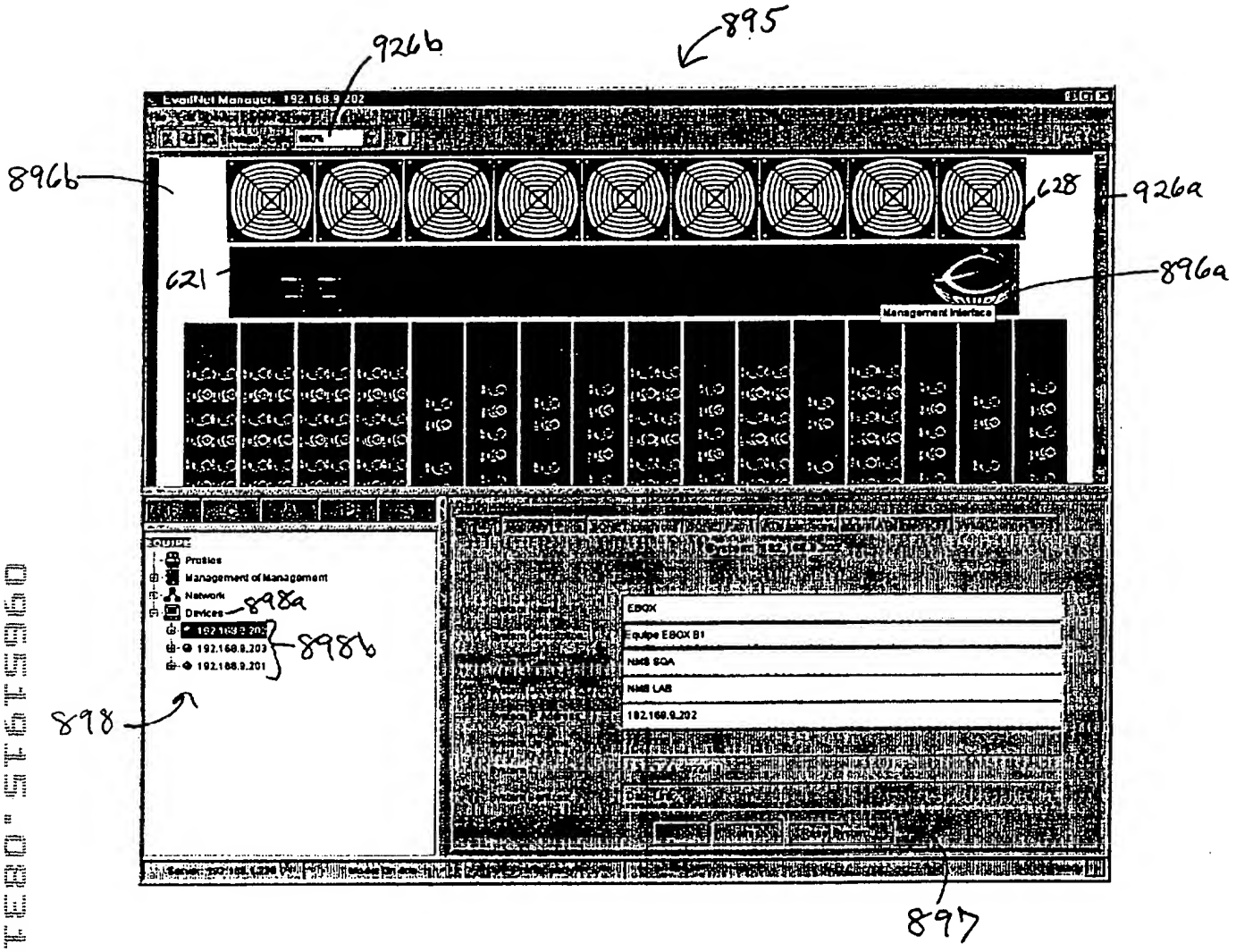


Fig. 4i

DOCKET ALARM

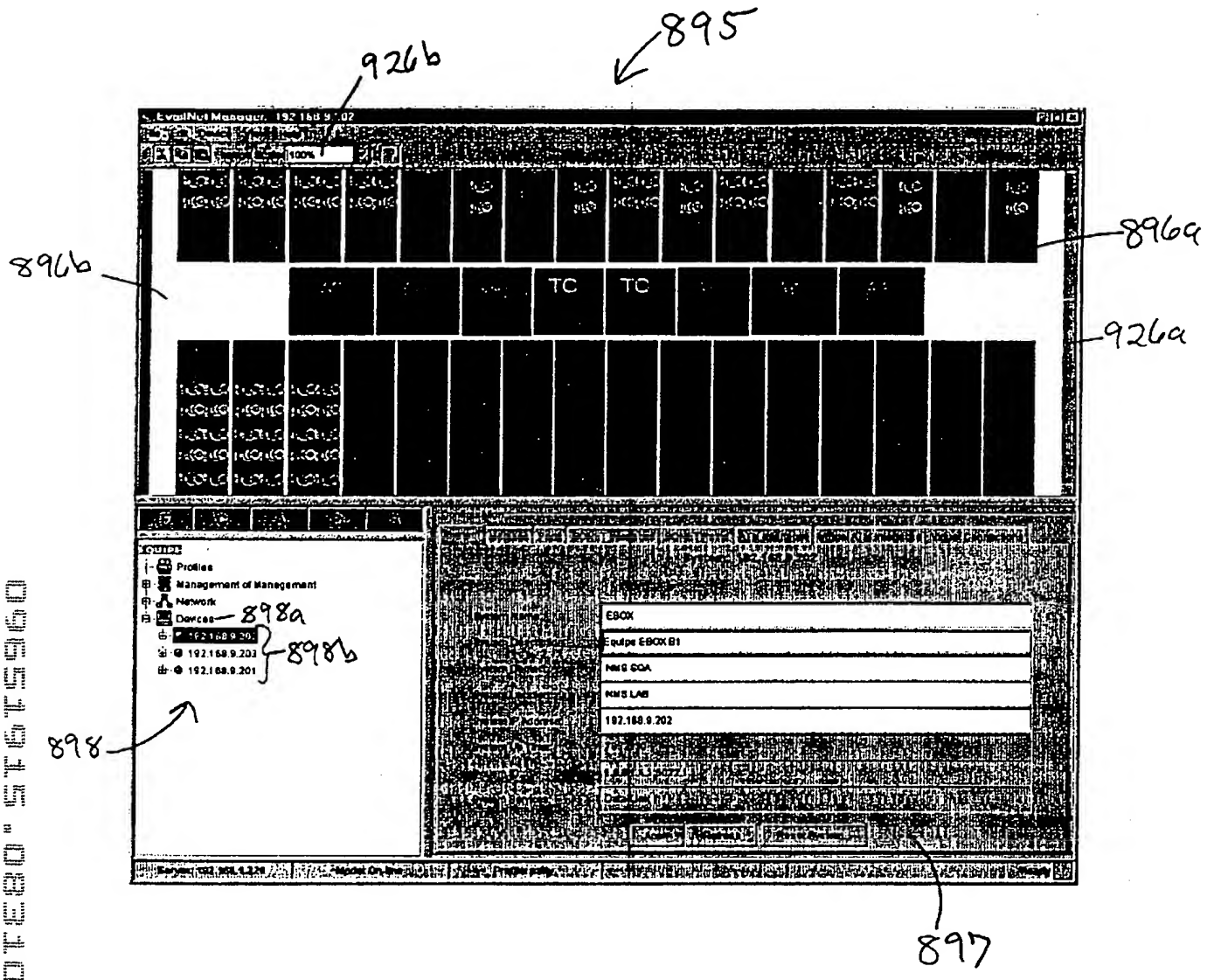


Fig. 4j

0.0.5.1.9.1.5.0.8.9.4.0.0

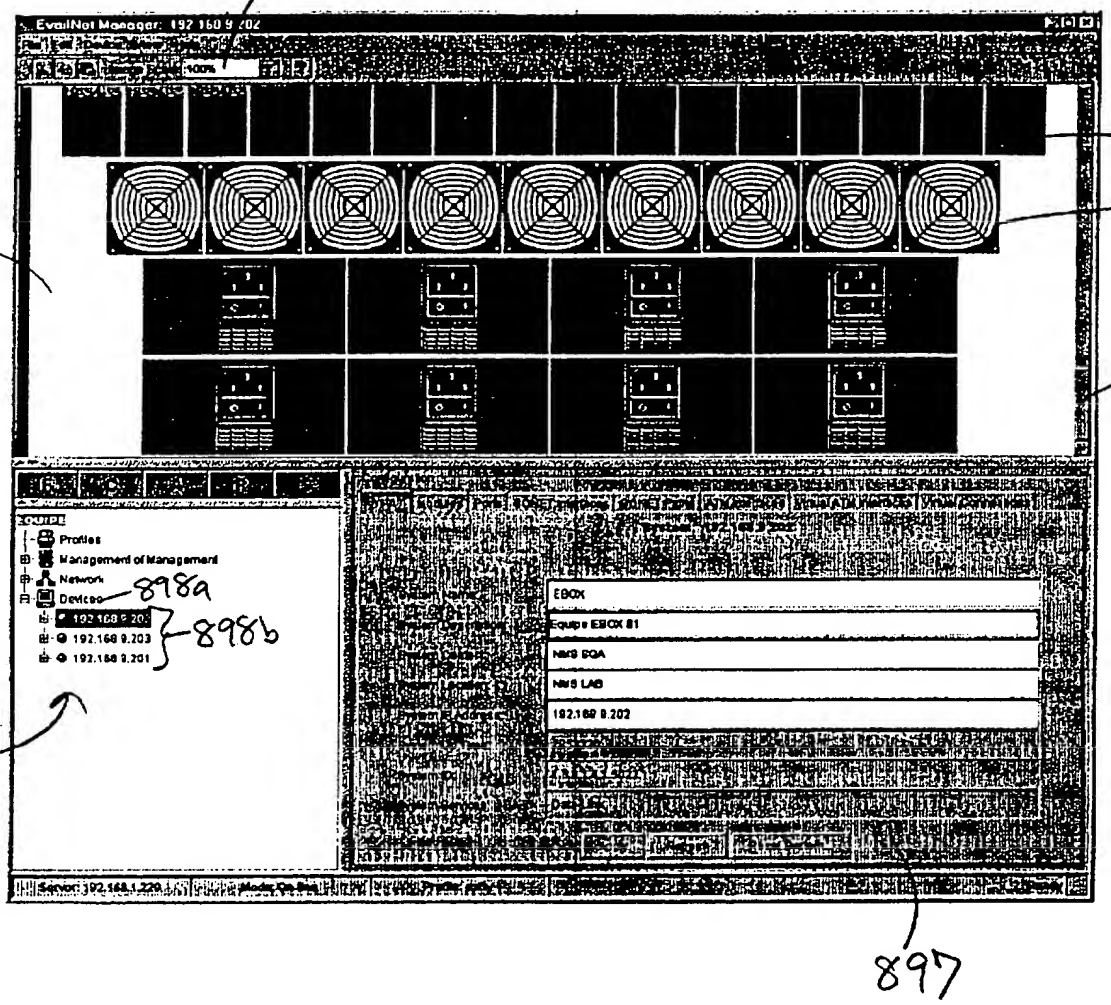

895
9266
896a
626
896b
9269
898a
898b
898
897
Profiles
Management of Management
Network
Devices
192.168.9.203
192.168.9.201
EBOX
Equipe EBOX 81
NMS SQA
NMS LAB
192.168.9.202

Fig. 4K

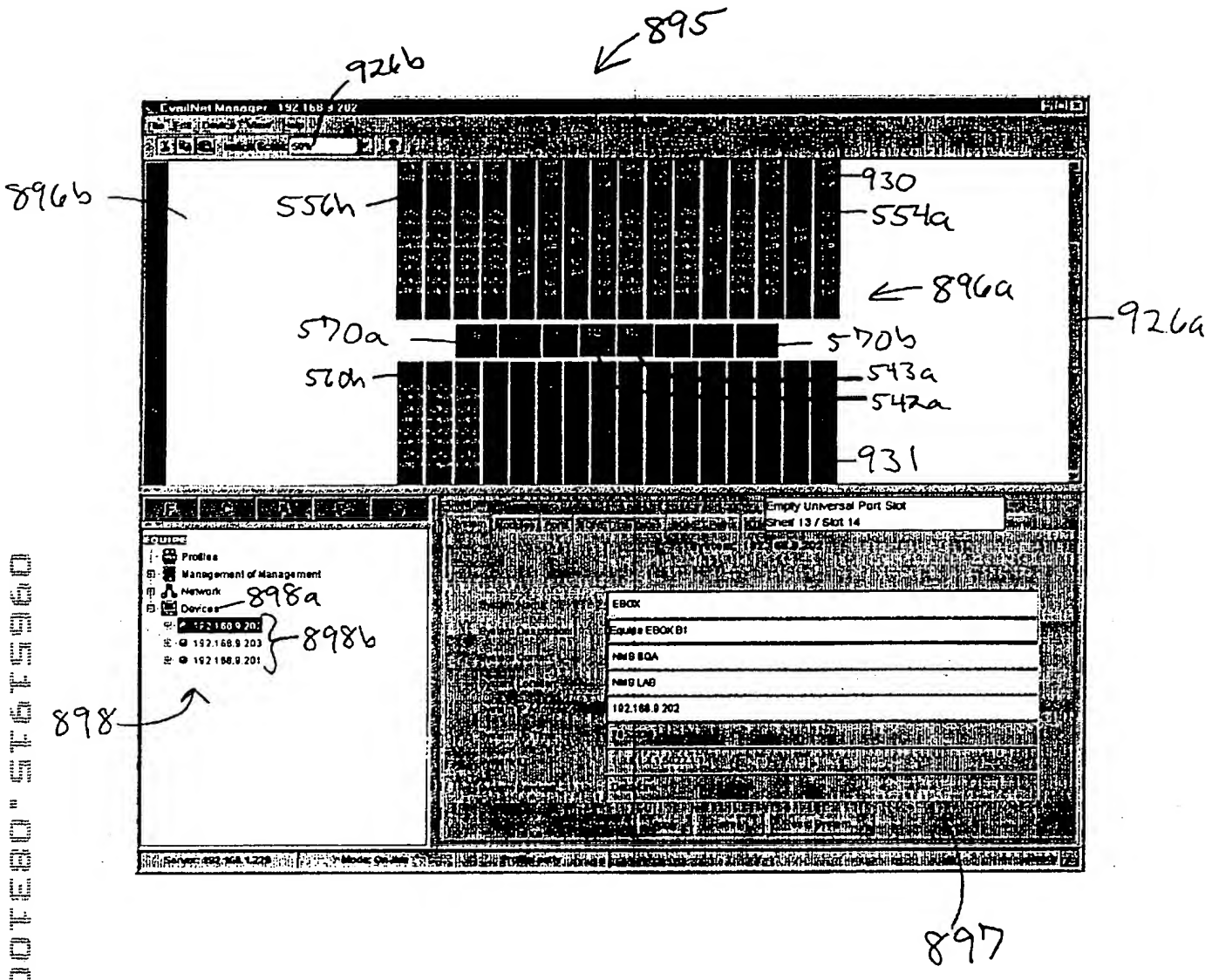

895
926b
896b
556h
930
554a
896a
926a
570a
570b
570h
543a
542a
931
898a
898b
898
897
Profiles
Management of Management
Network
Devices
Empty Universal Port Slot
Shelf 13 / Slot 14
EBOX
Equipe EBOX B1
NMS BQA
NMS LAB
192.168.9.202

Fig. 4L

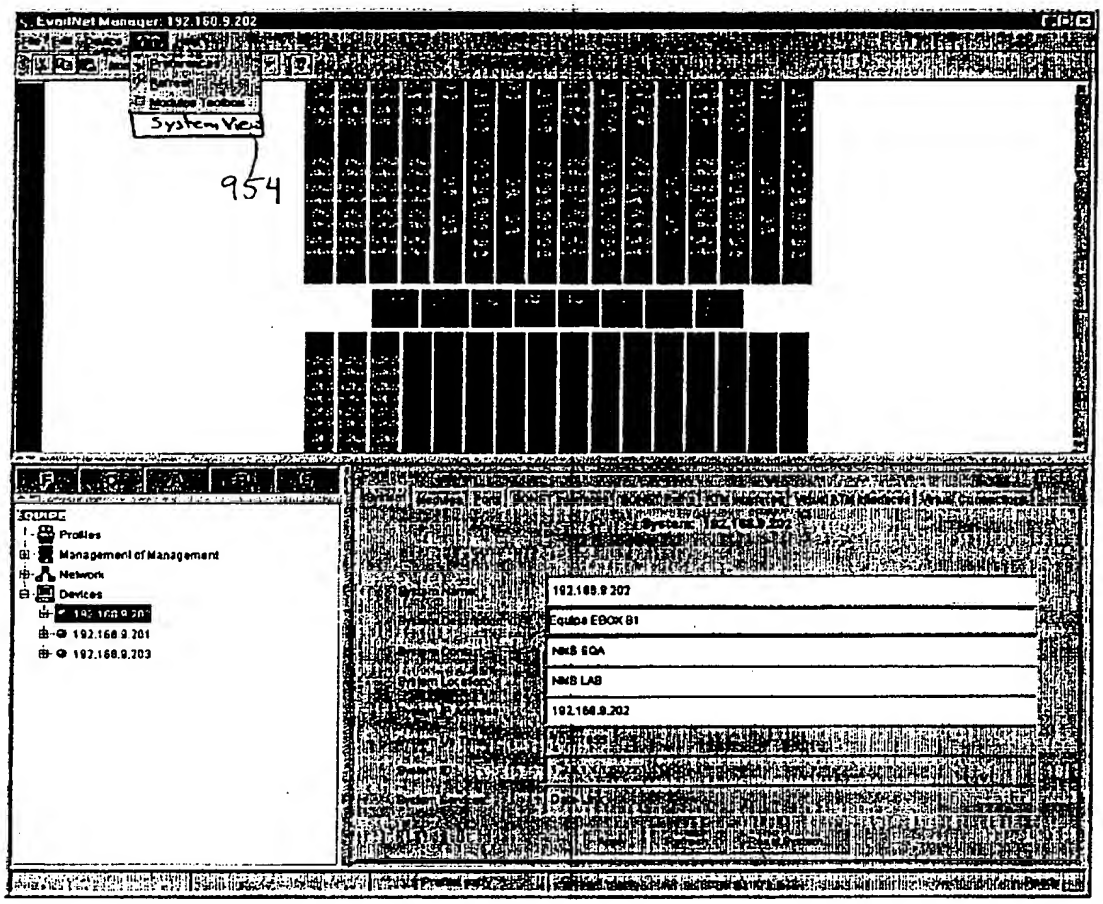


Fig. 4m

09535.0800

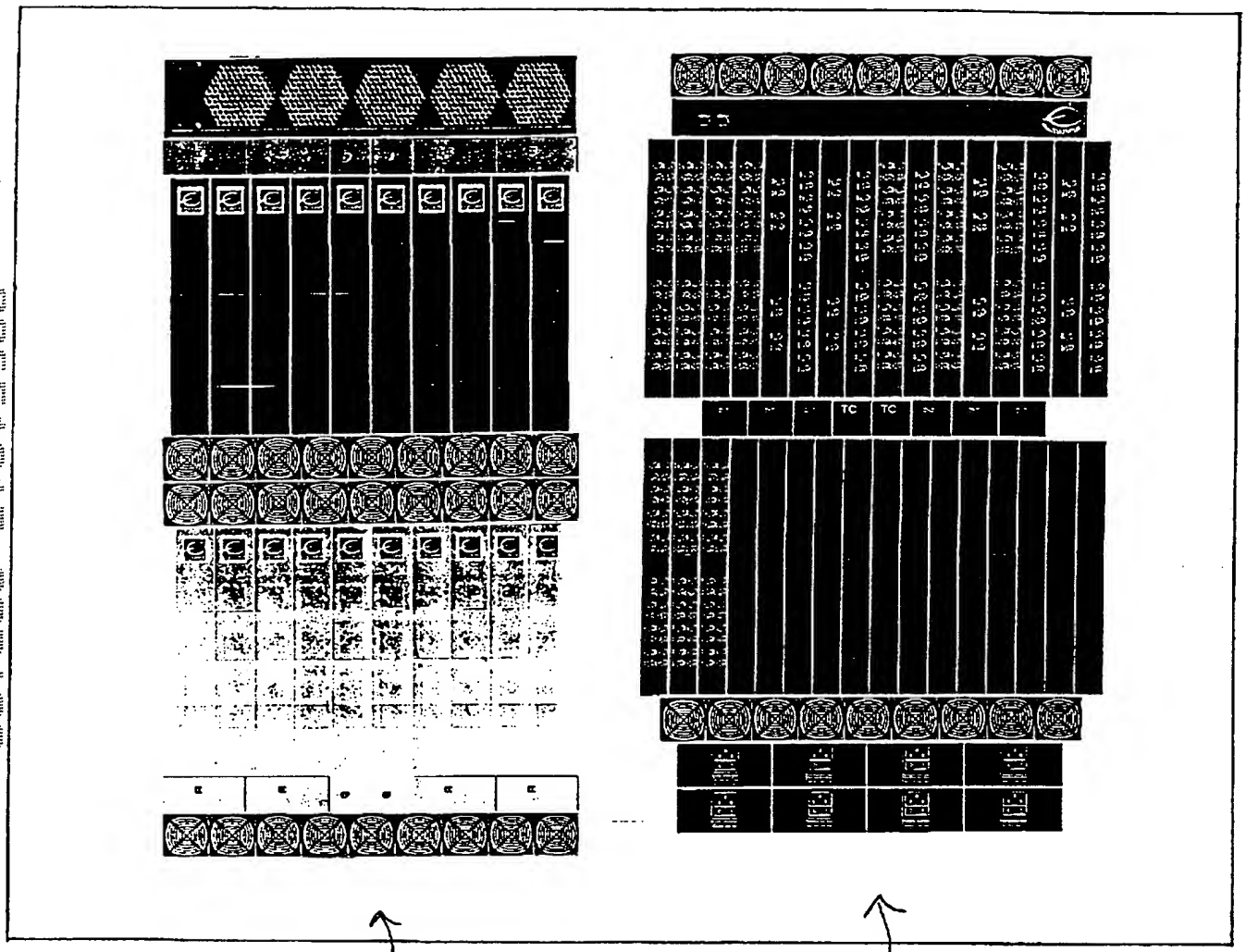


Fig. 4n

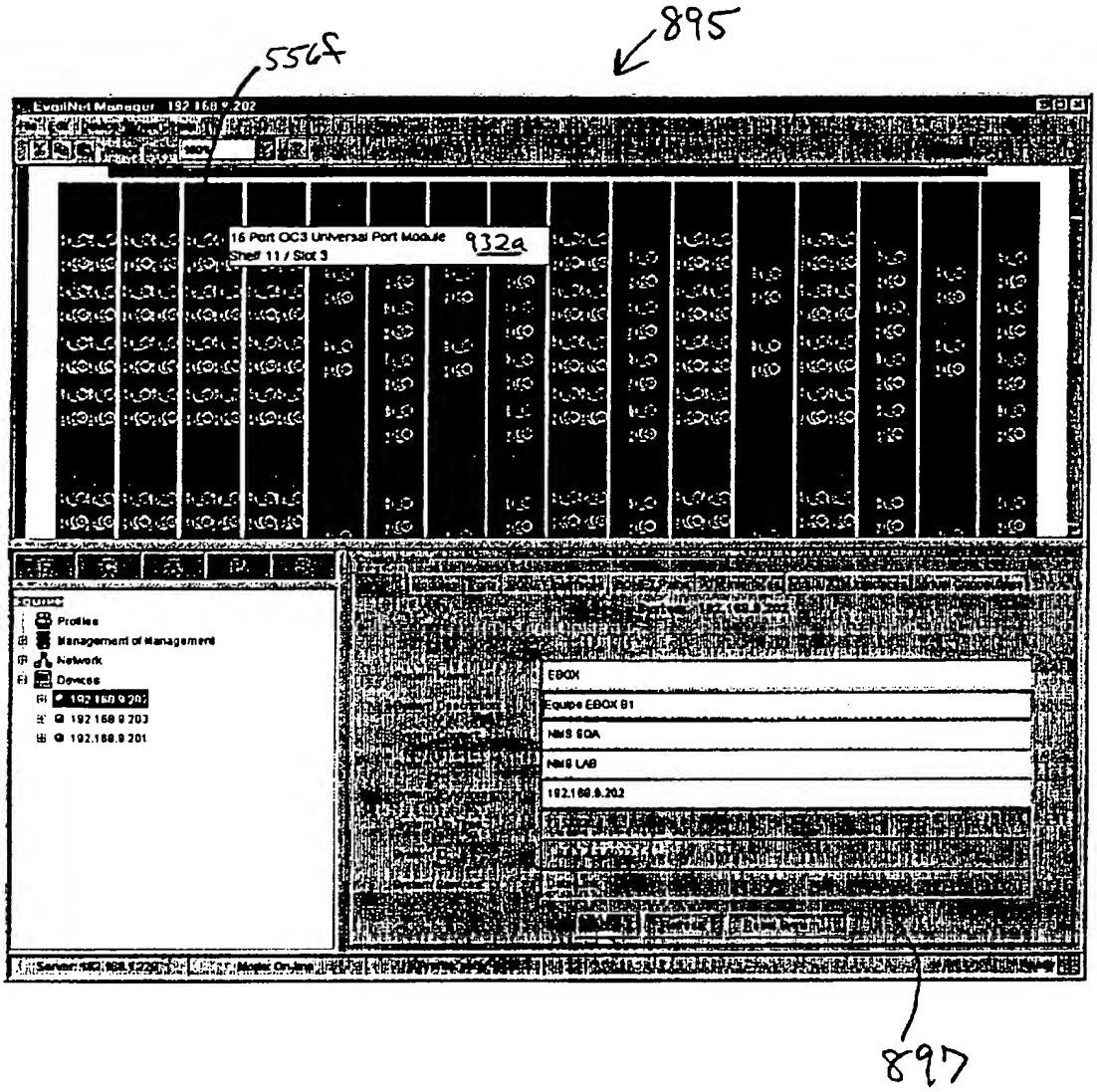


Fig. 4o

0078800-5155590

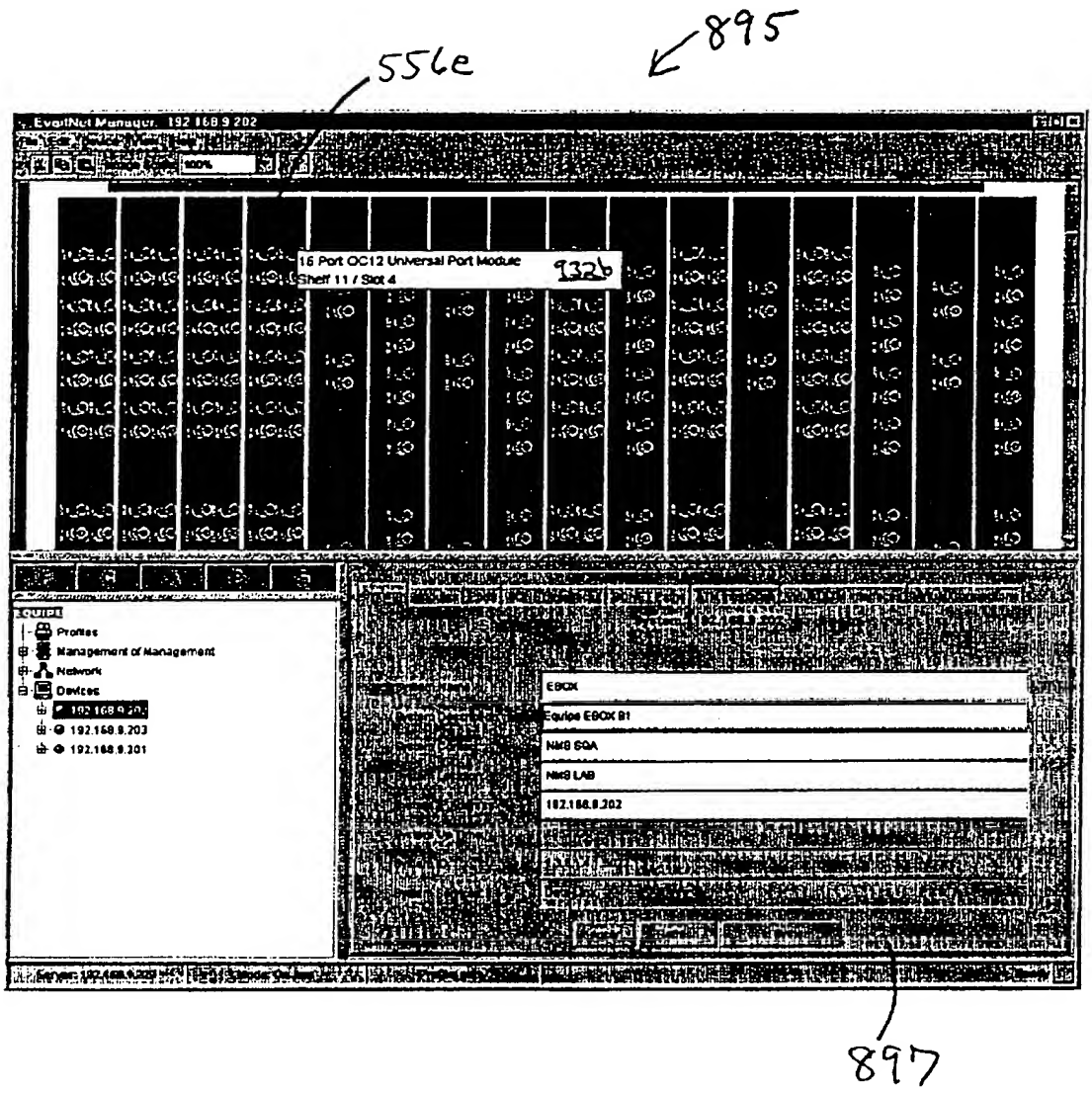


Fig. 4P

08/29/03 15:59:59

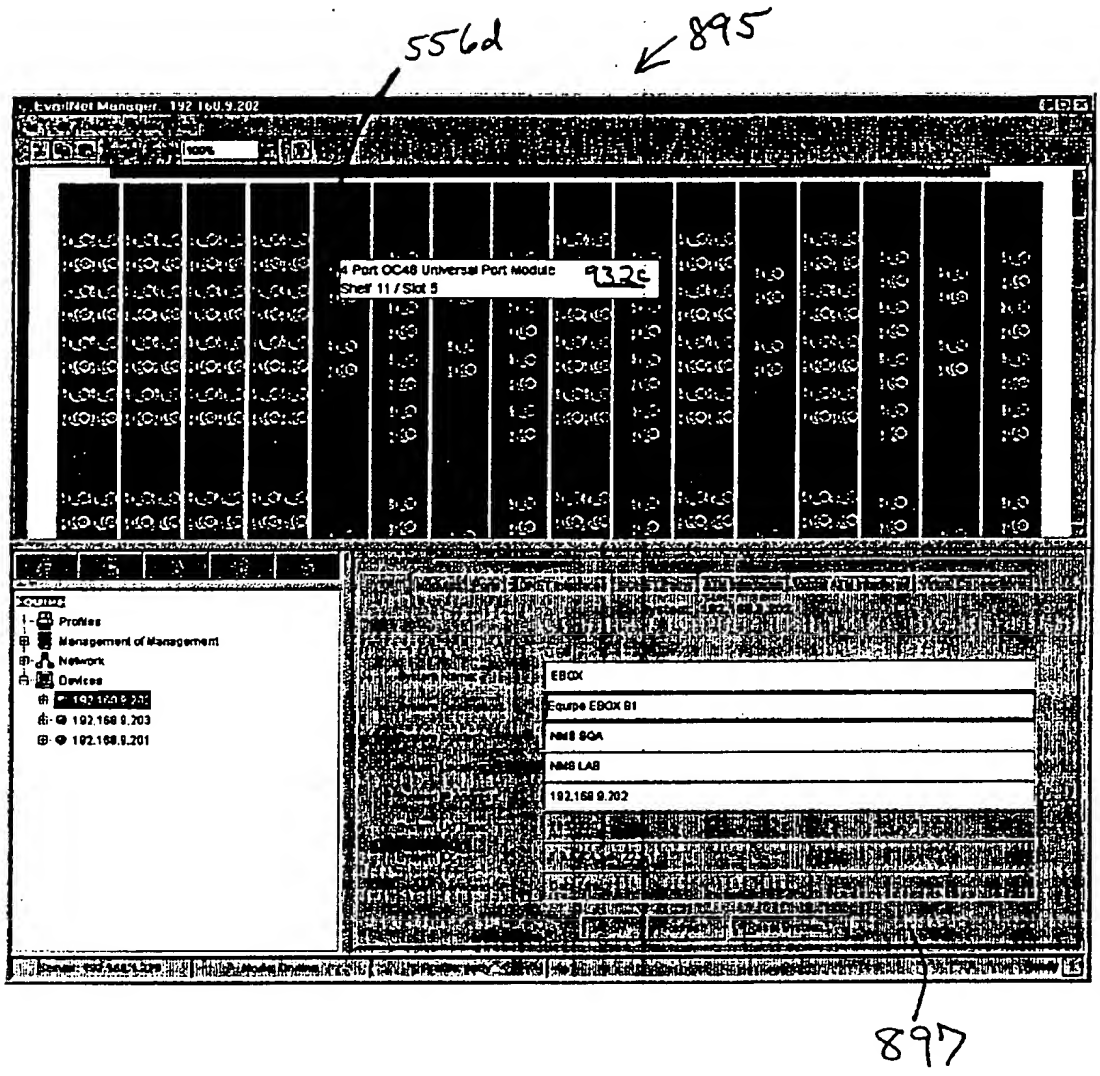


Fig. 4g

0054545-0060101

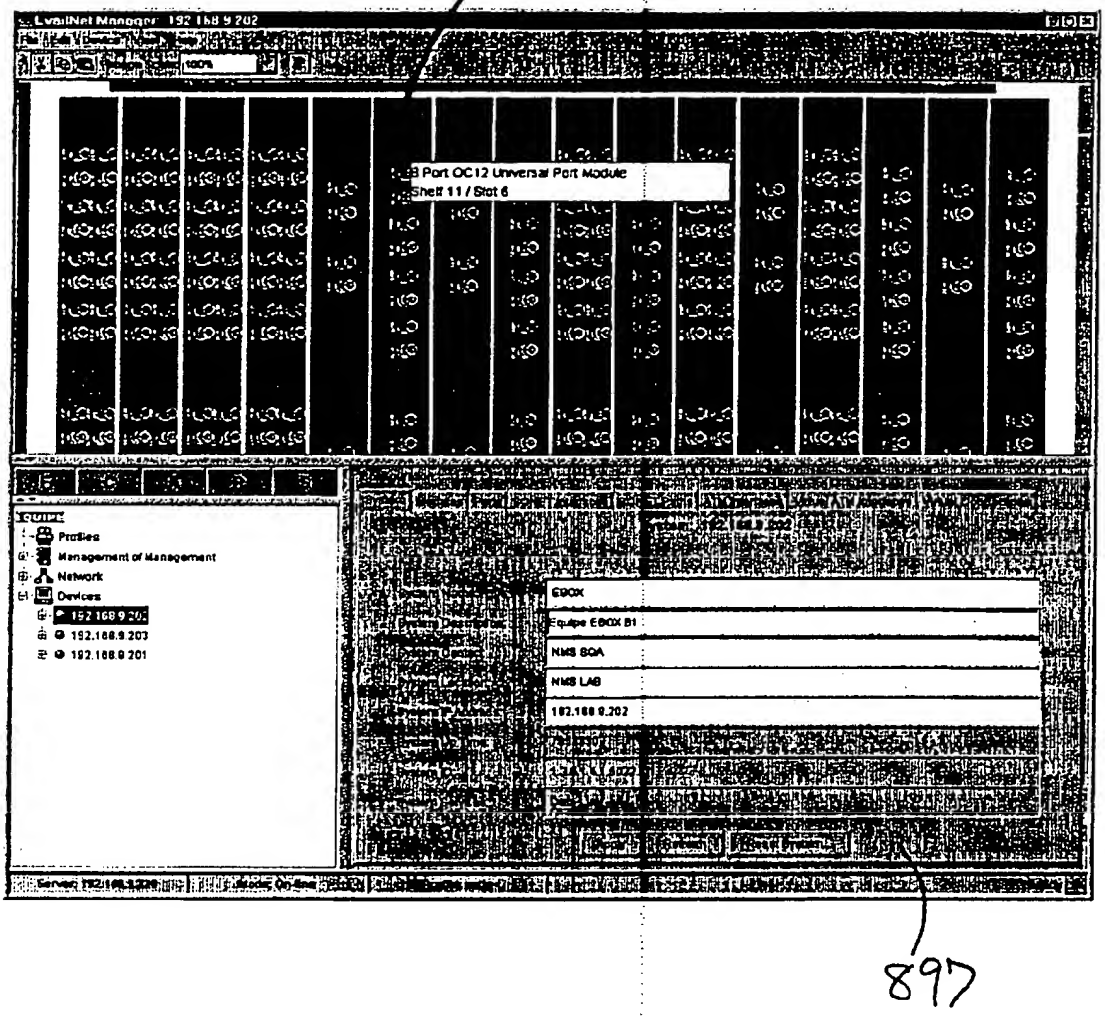


Fig. 4F

0050-0050-0050-0050

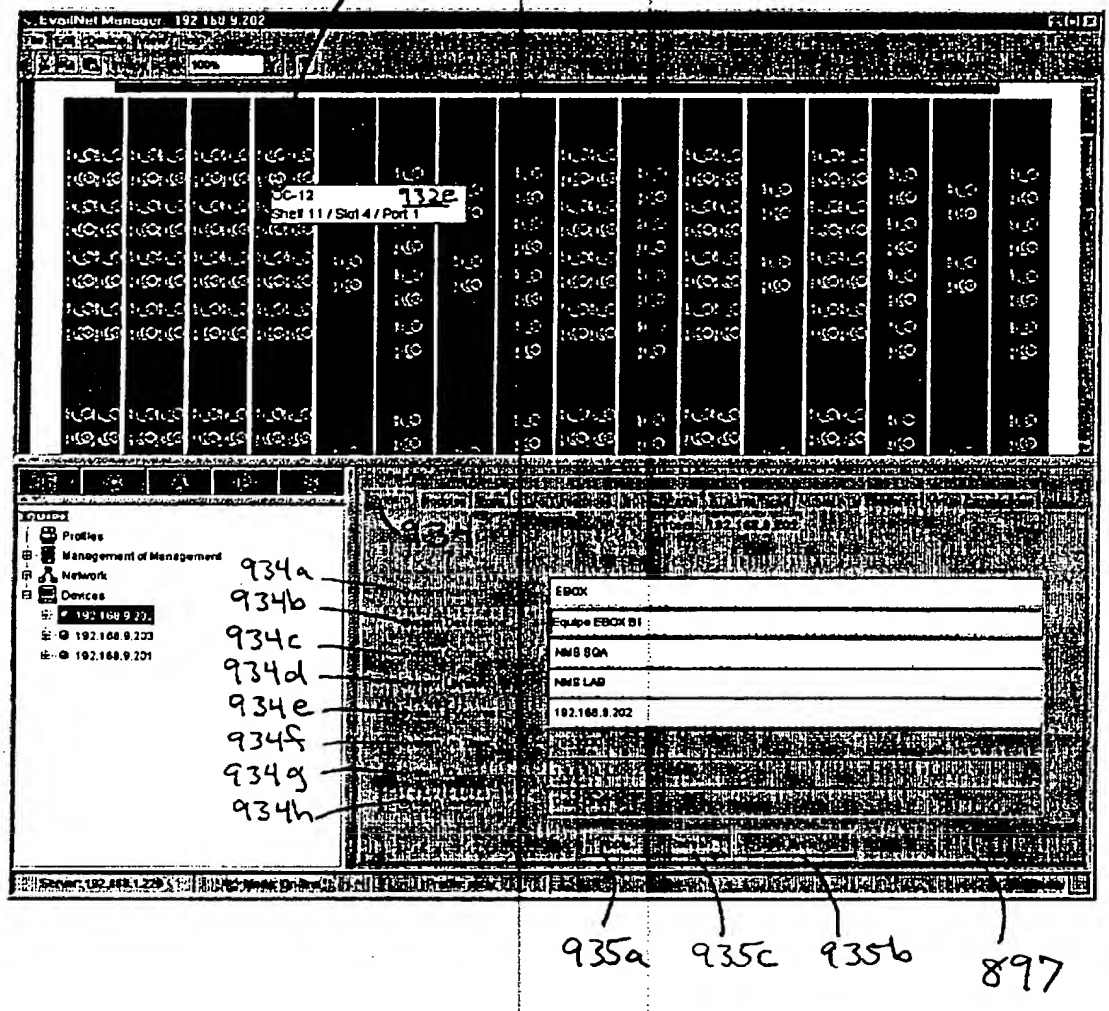

895
933
932e
934a
934b
934c
934d
934e
934f
934g
934h
935a
935c
935b
897

Fig. 4s

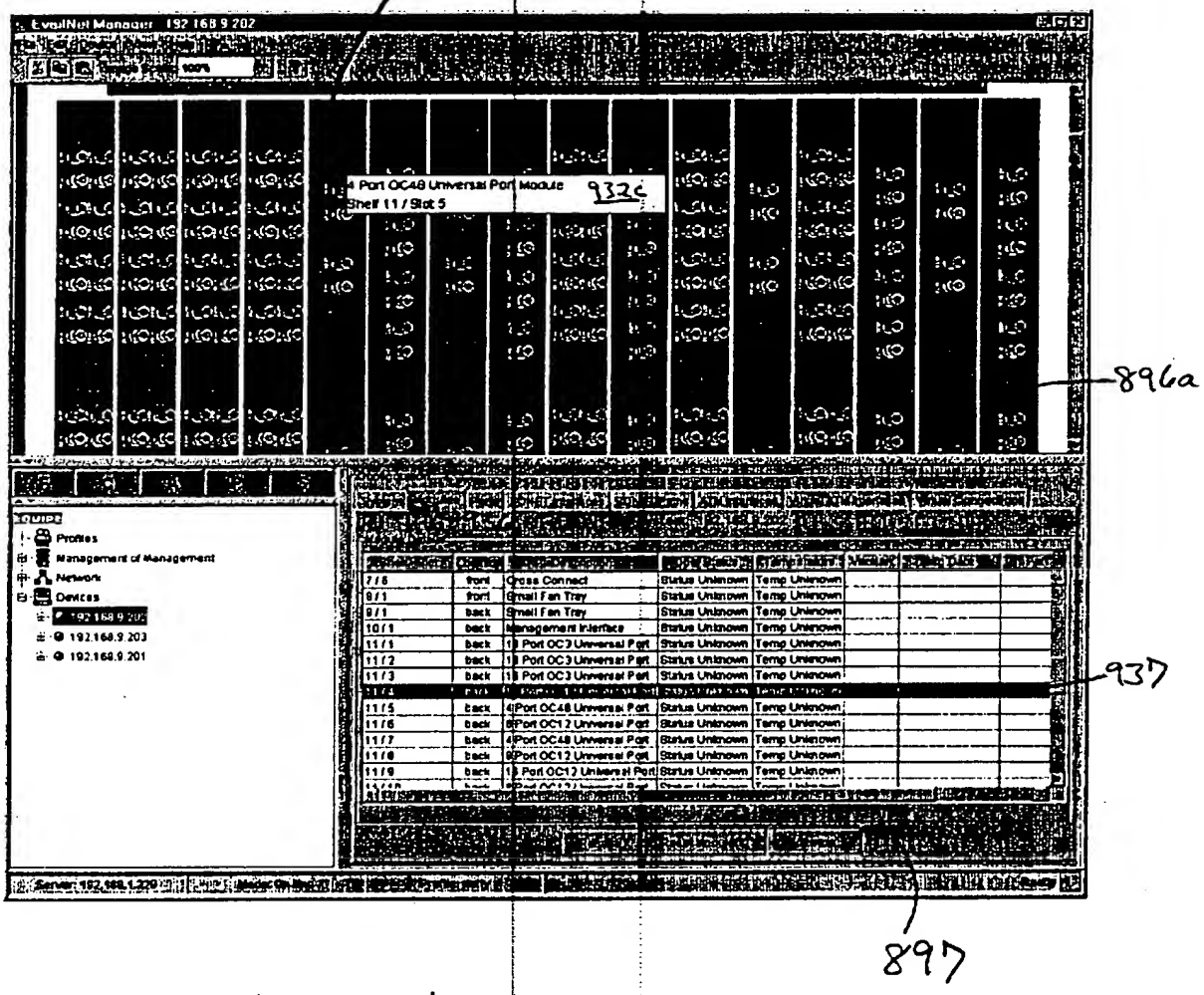


Fig. 4f

09535-0003-00

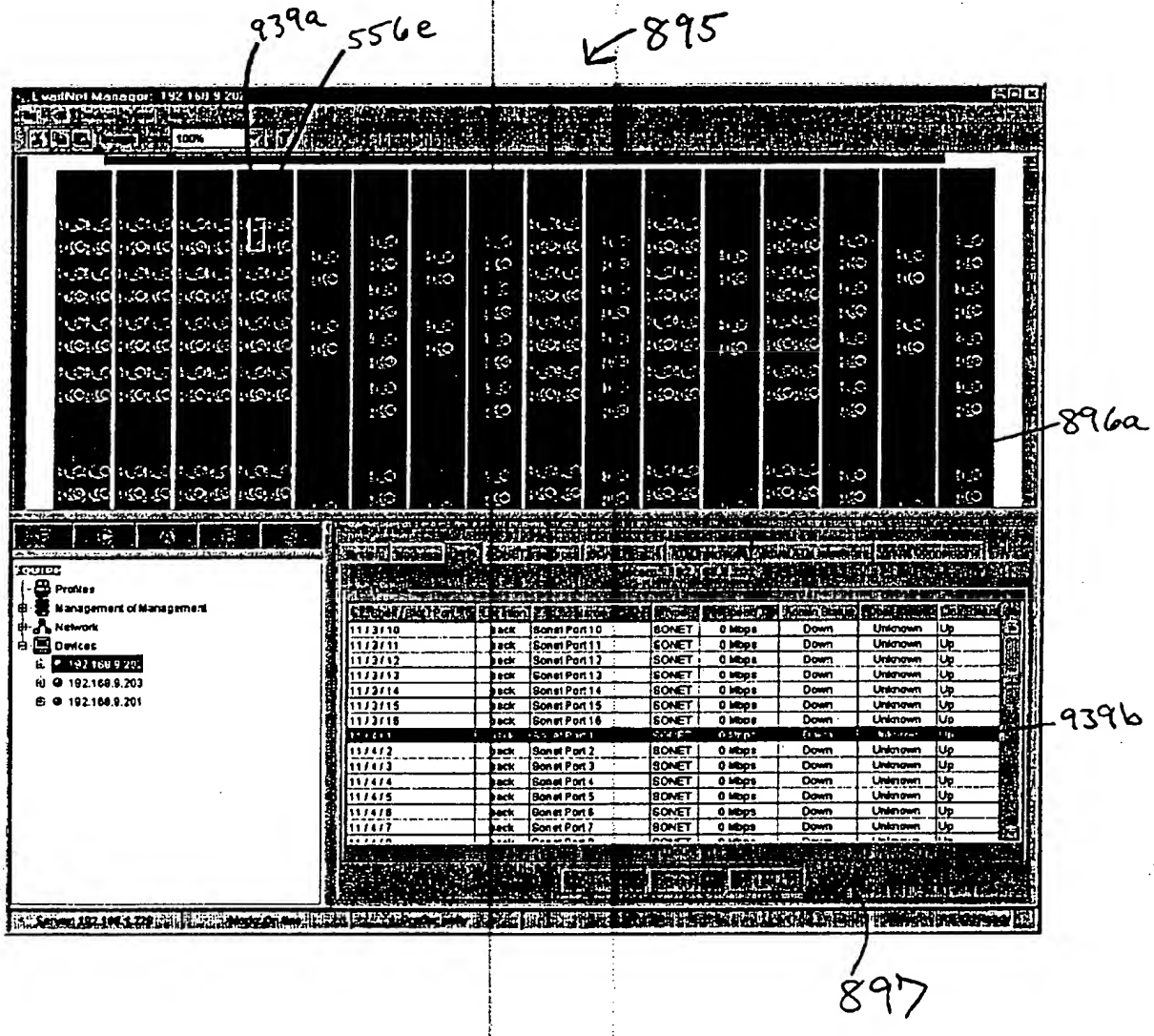

939a
556e
895
896a
939b
897
Profiles
Management of Management
Network
Devices
192.168.9.203
192.168.9.201

Fig. 4u

0.0.0.

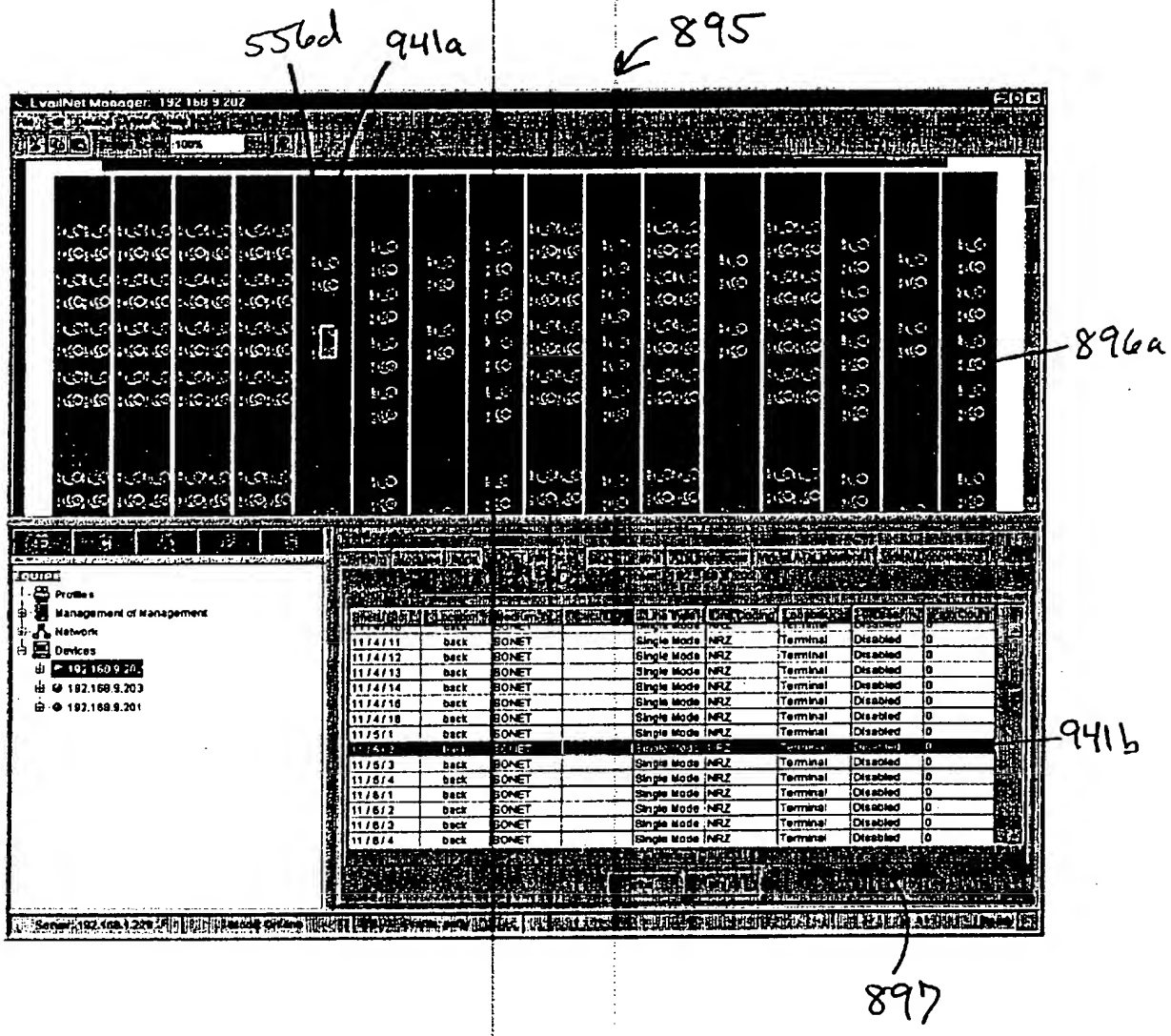


Fig. 4v

09653435.080300

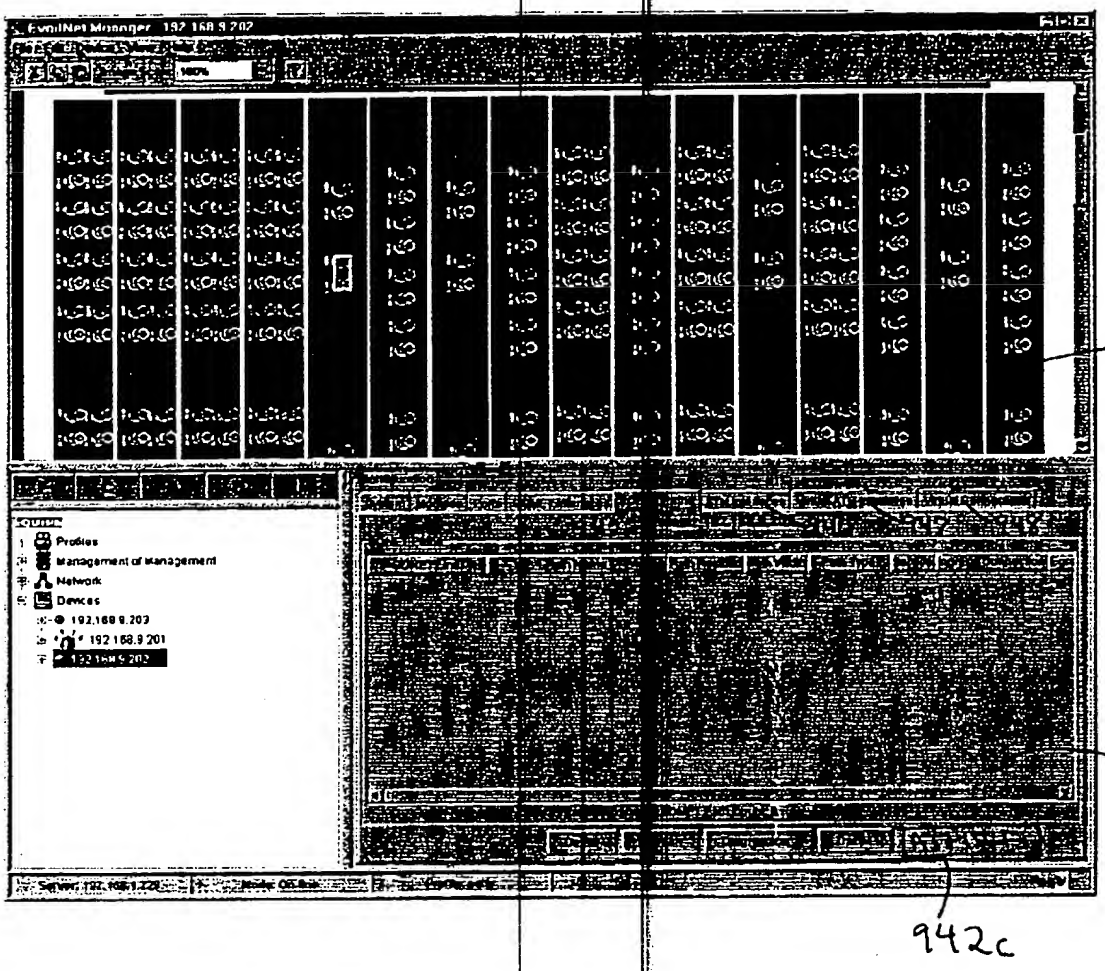

895
896a
897
942c
Probes
Management of management
Network
Devices
192.168.9.203
192.168.9.201

Fig. 4W

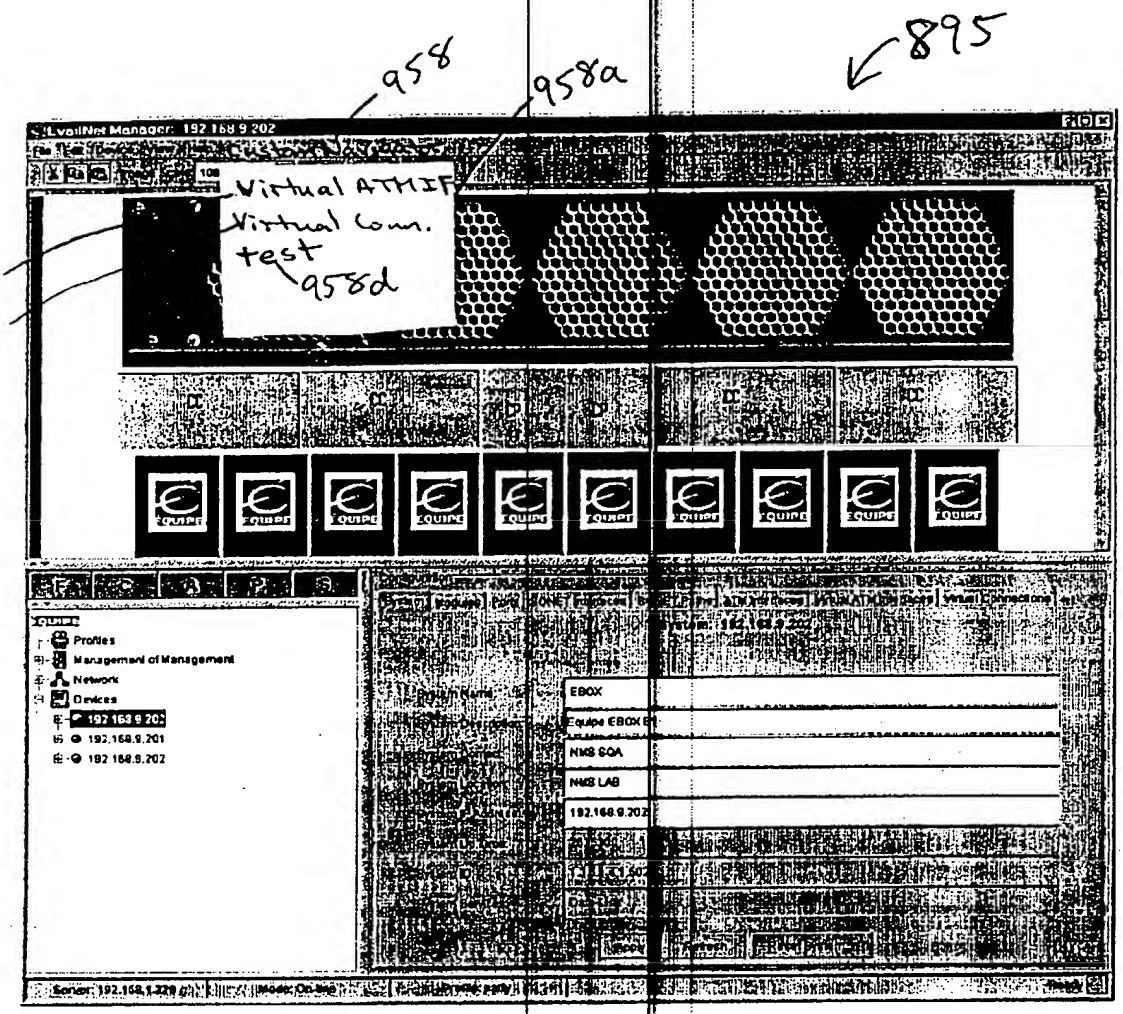

958
958a
895
Virtual ATHIF
Virtual Conn.
test
958d
958b
958c
Profiles
Management of Management
Network
Devices
192.168.9.201
192.168.9.202
EBOX
Equipe EBOX
NMS SQA
NMS LAB
192.168.9.202

Fig. 4X

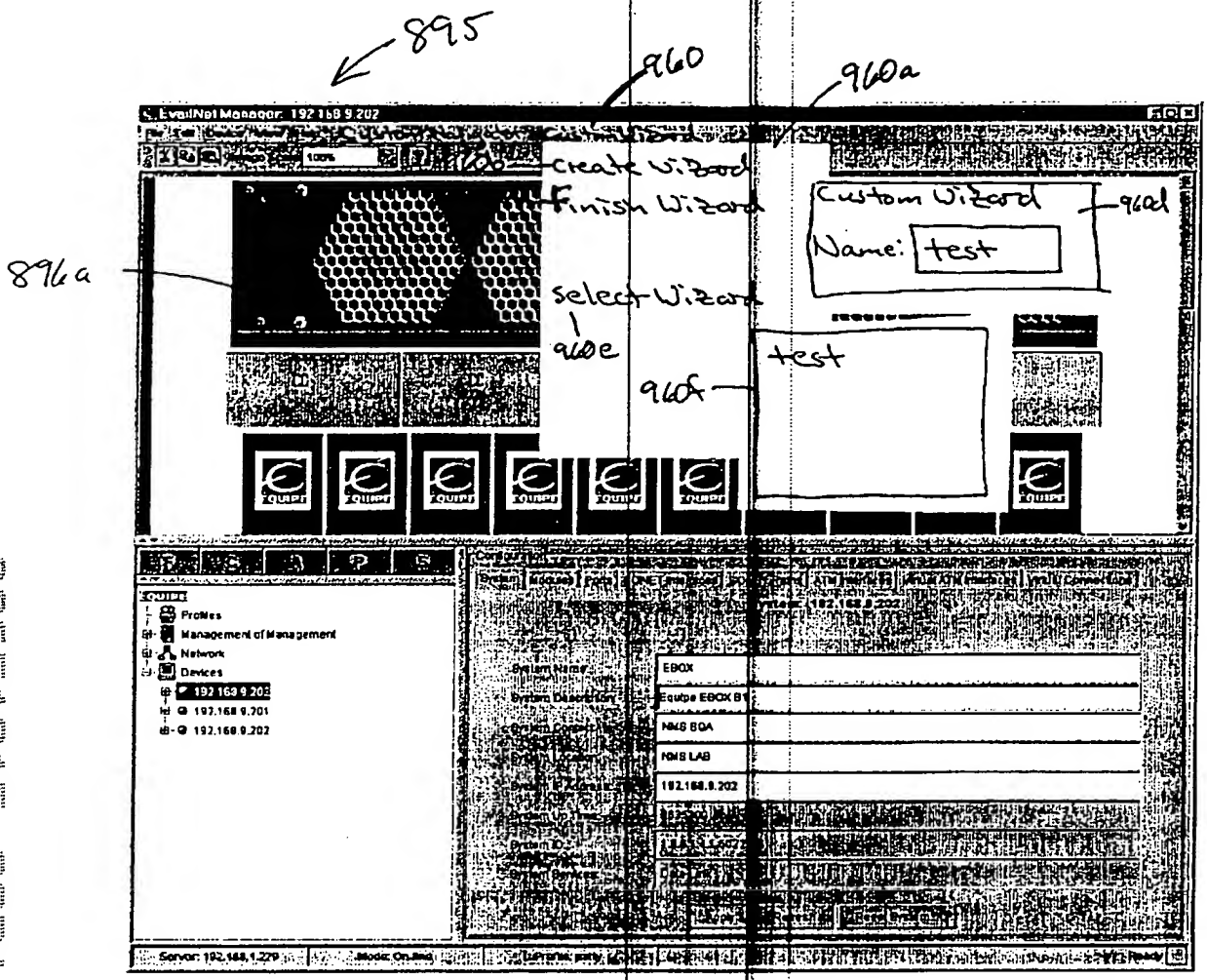


Fig. 4Y

0015880-5950-4150-0

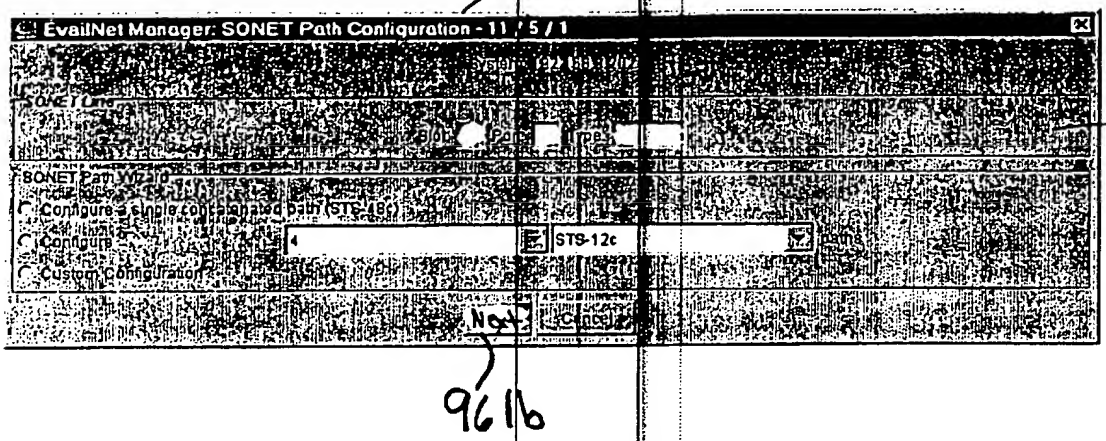


Fig. 42

09651945 - 082400

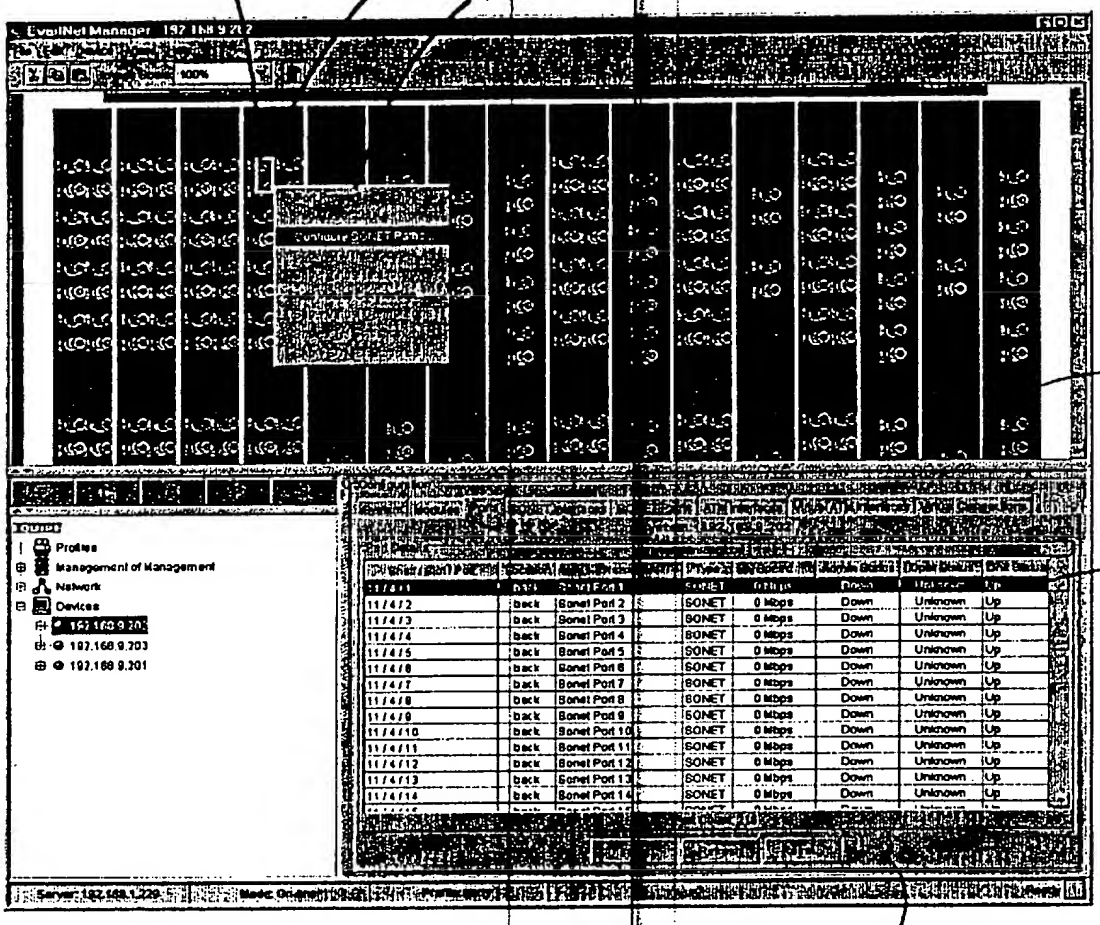


Fig. 5a

0595.9345.0830.3100

Fig. 5b

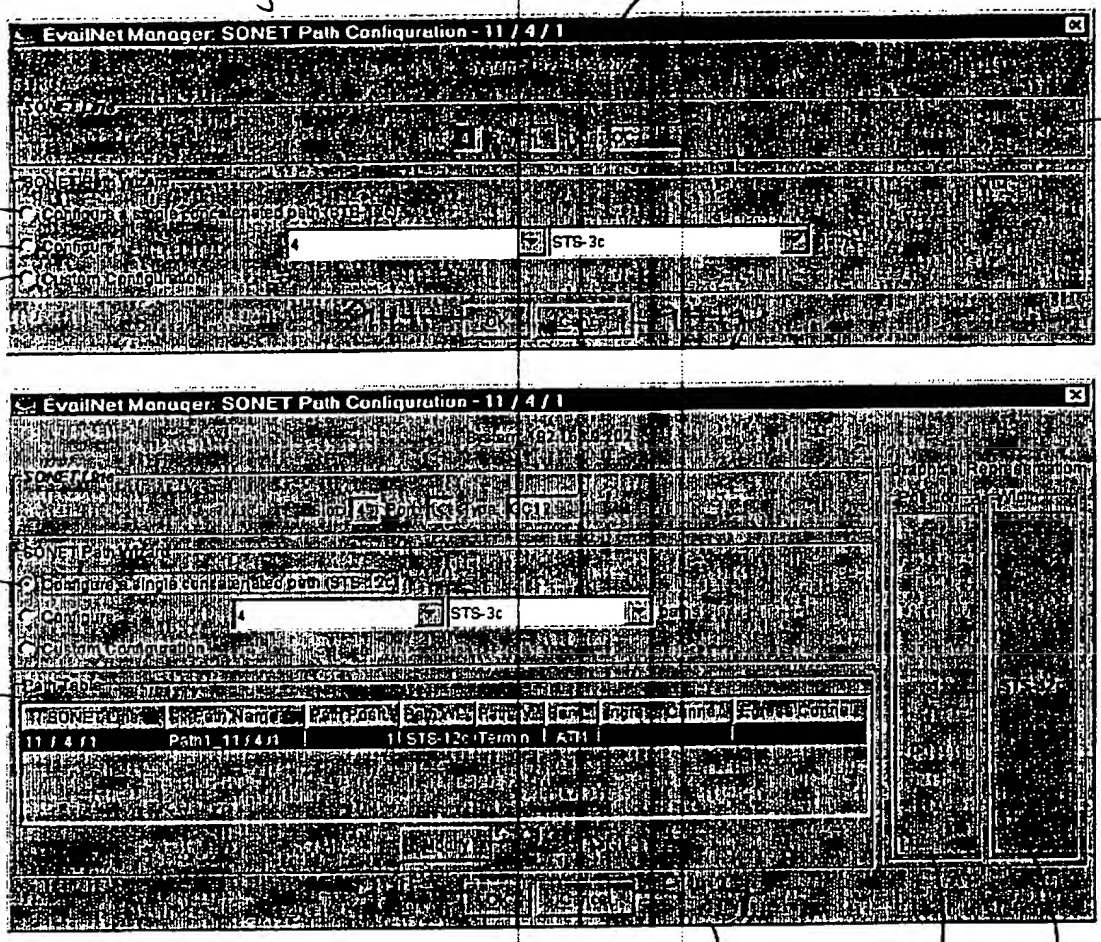

944
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
944a
944b
944c
944d
STS-3c
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
944b
944g
STS-3c
944
944e
944f

Fig. 5c

Fig. 5d

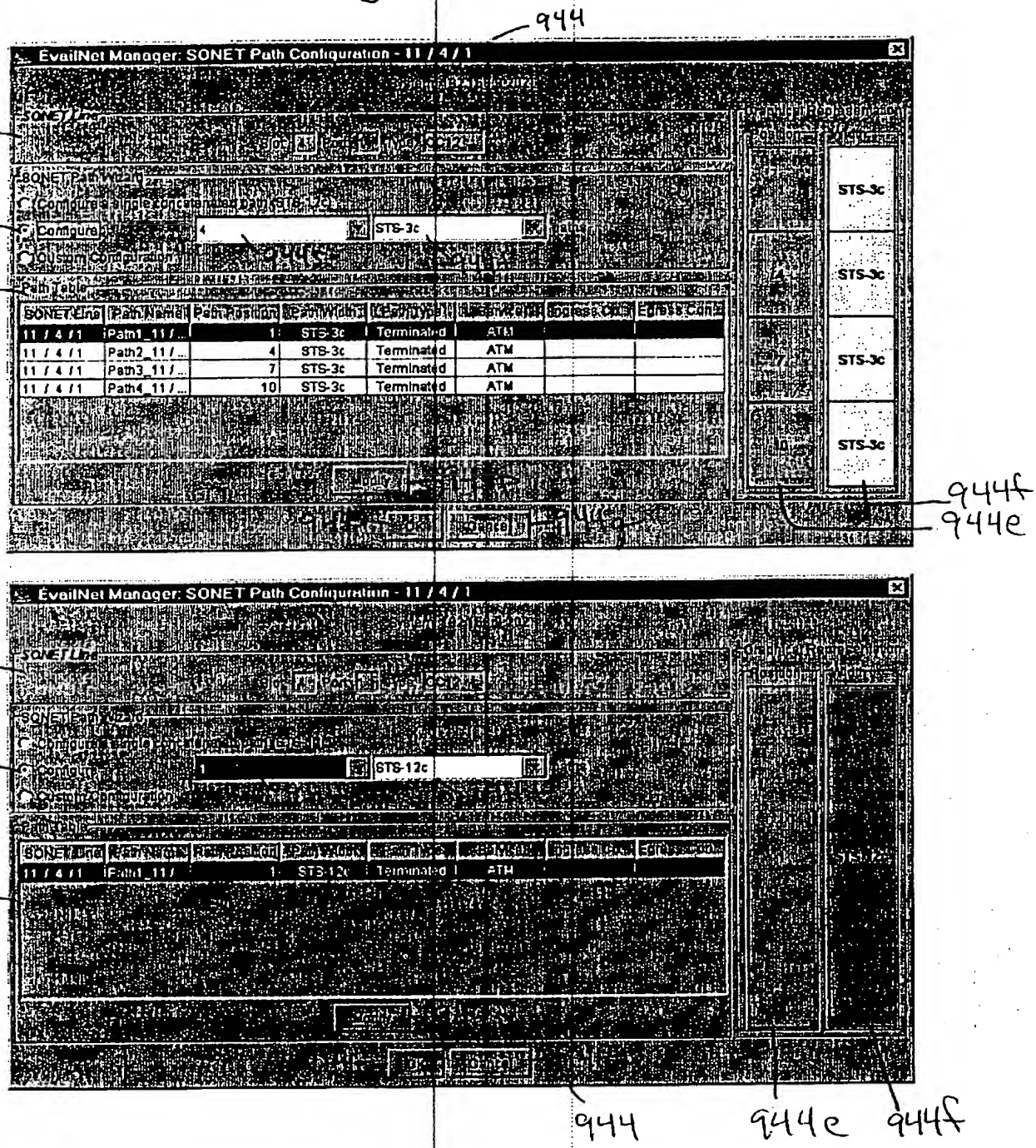
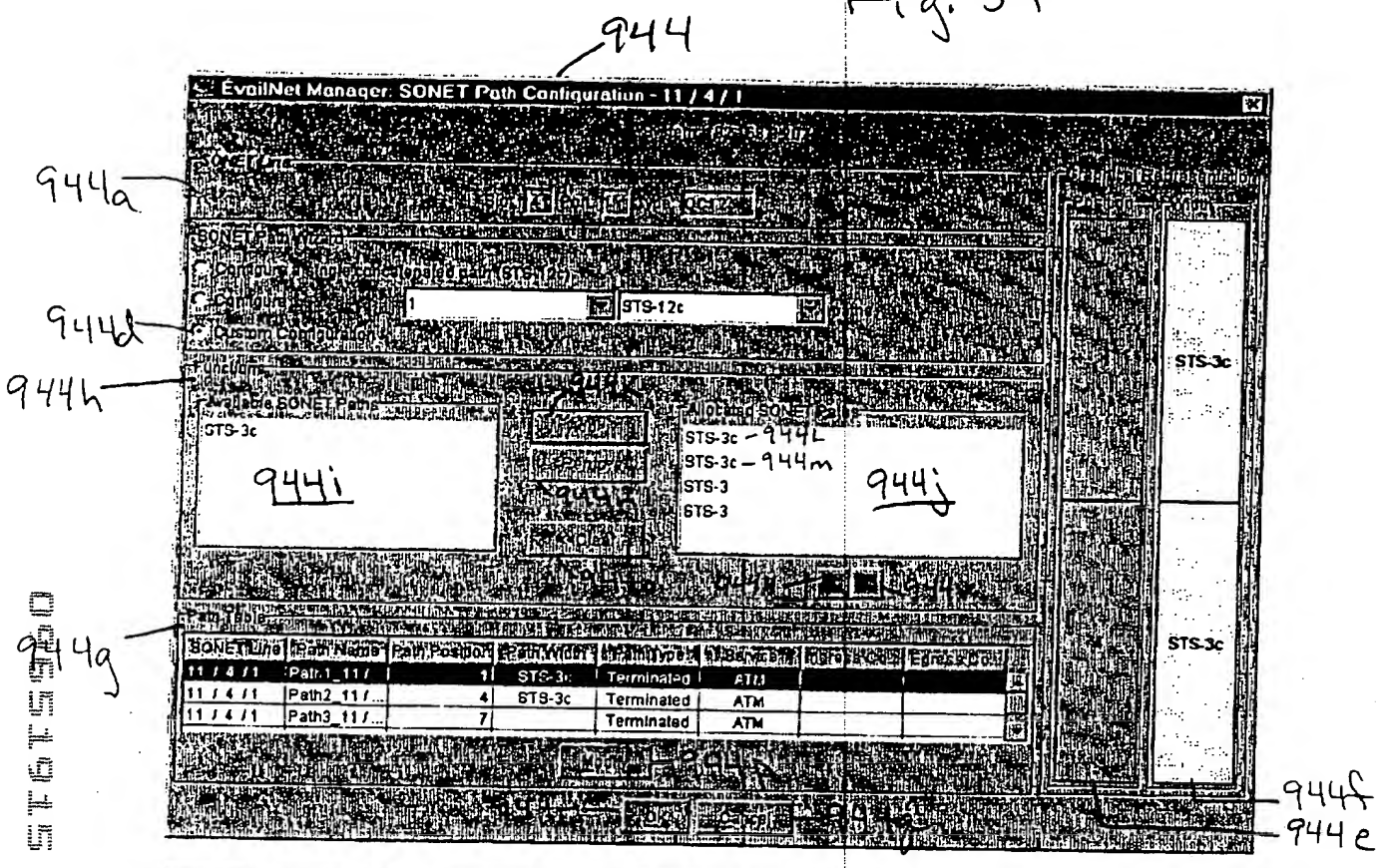

944
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
944a
944c
944g
944f
944e
STS-3c
STS-12c
SONET Line
Path Table
SONET Line
Path Name
Path Position
Path Width
Path Type
Ingress Conn
Egress Conn
11 / 4 / 1
Path1_11 / ...
Path2_11 / ...
Path3_11 / ...
Path4_11 / ...
Terminated
ATM
OK
Cancel

Fig. 5e

Fig. 5f


944
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
944a
944d
944h
STS-12c
STS-3c
STS-3c – 944L
STS-3c – 944m
STS-3
STS-3
944i
944j
944g
SONET Line
Path Name
Path Position
Path Width
Path Type
Terminated
ATM
11 / 4 / 1
Path1_11 /...
Path2_11 /...
Path3_11 /...
STS-3c
944f
944e

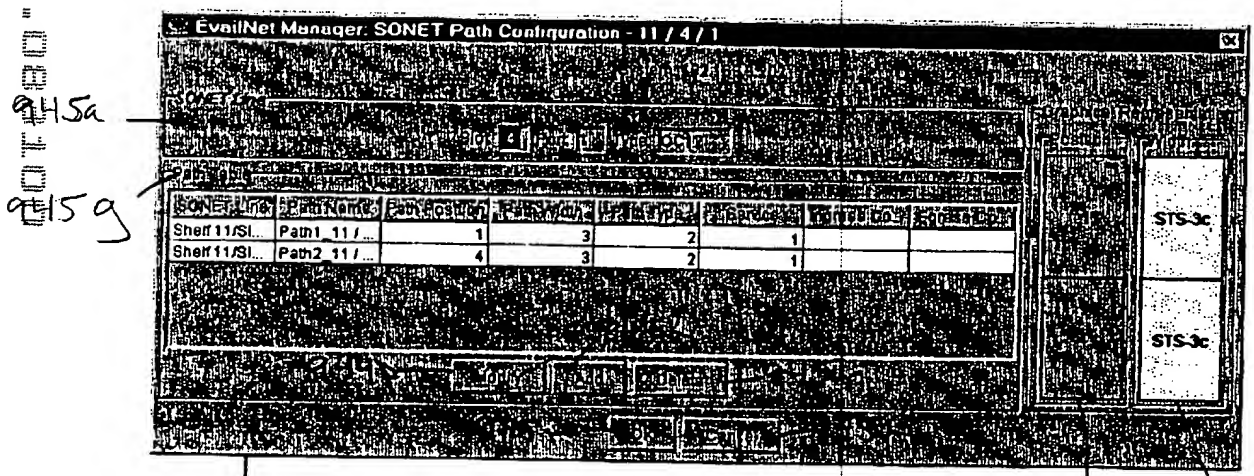

EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
945a
945g
SONET Line
Path Name
Path Position
Sheff 11/Sl...
Path1_11 /...
Path2_11 /...
STS-3c
945
945e
945f

Fig. 5g

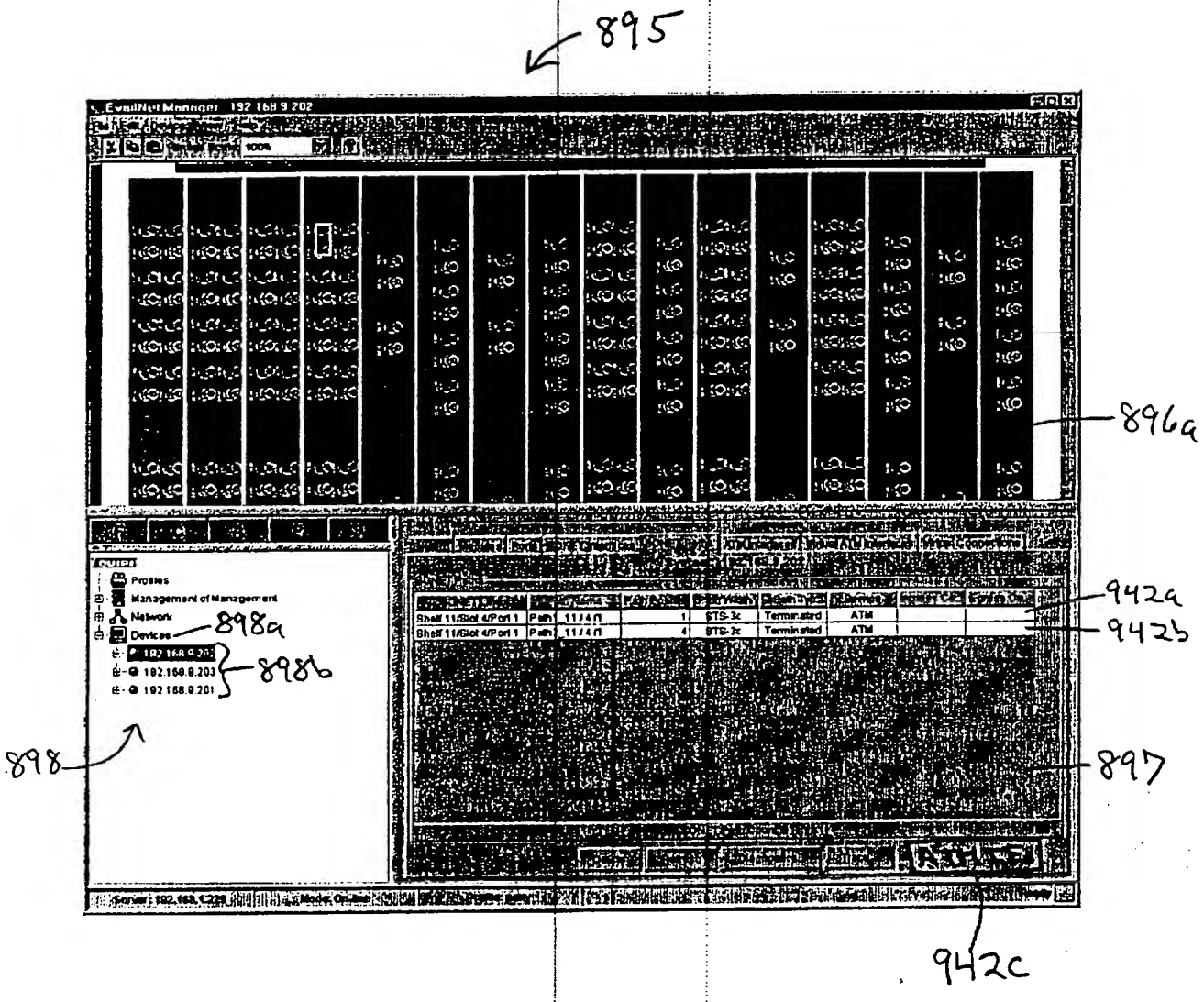


Fig. 5h

09534700

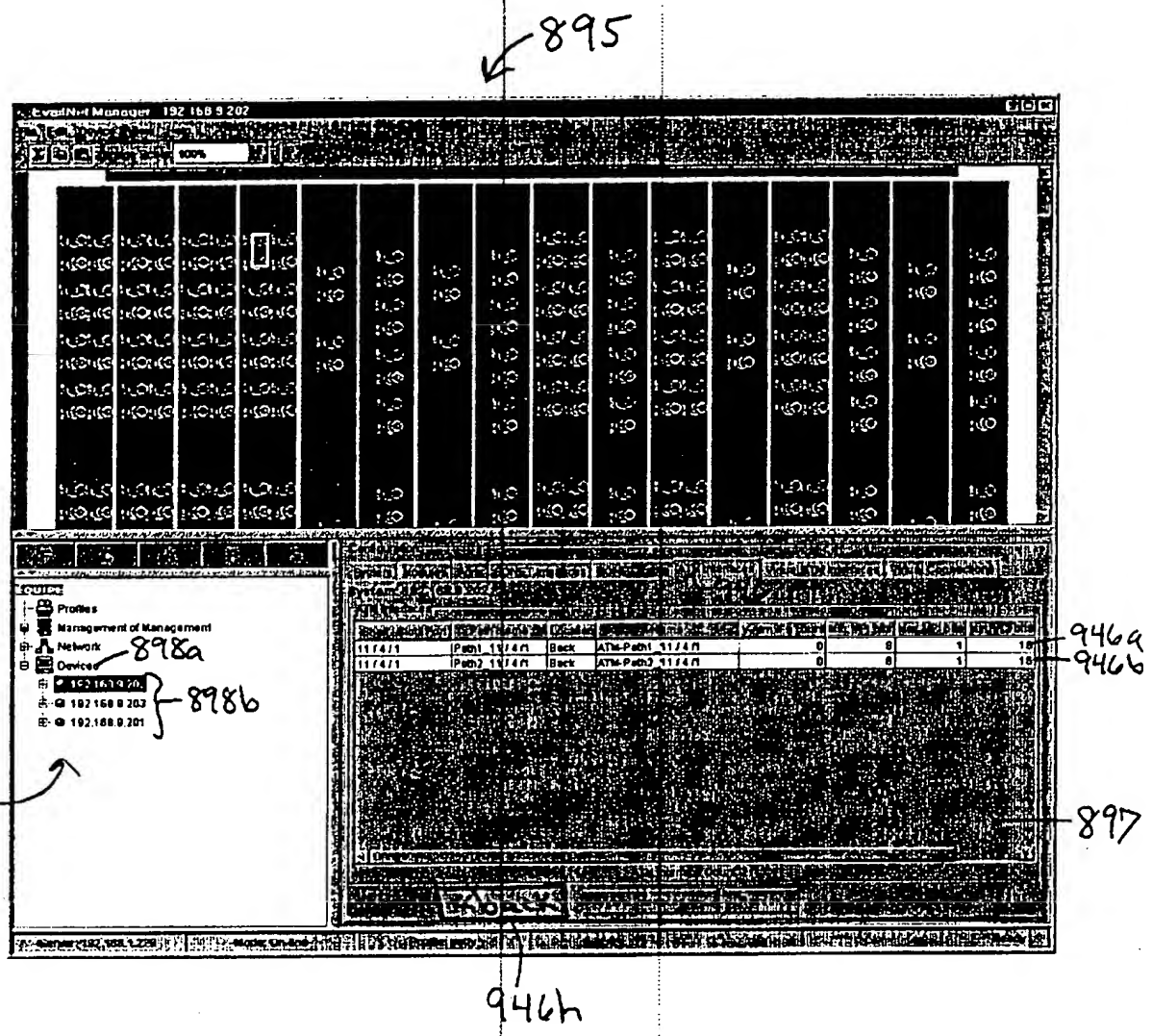


Fig. 5i

09654945 - 082904

Fig. 5j

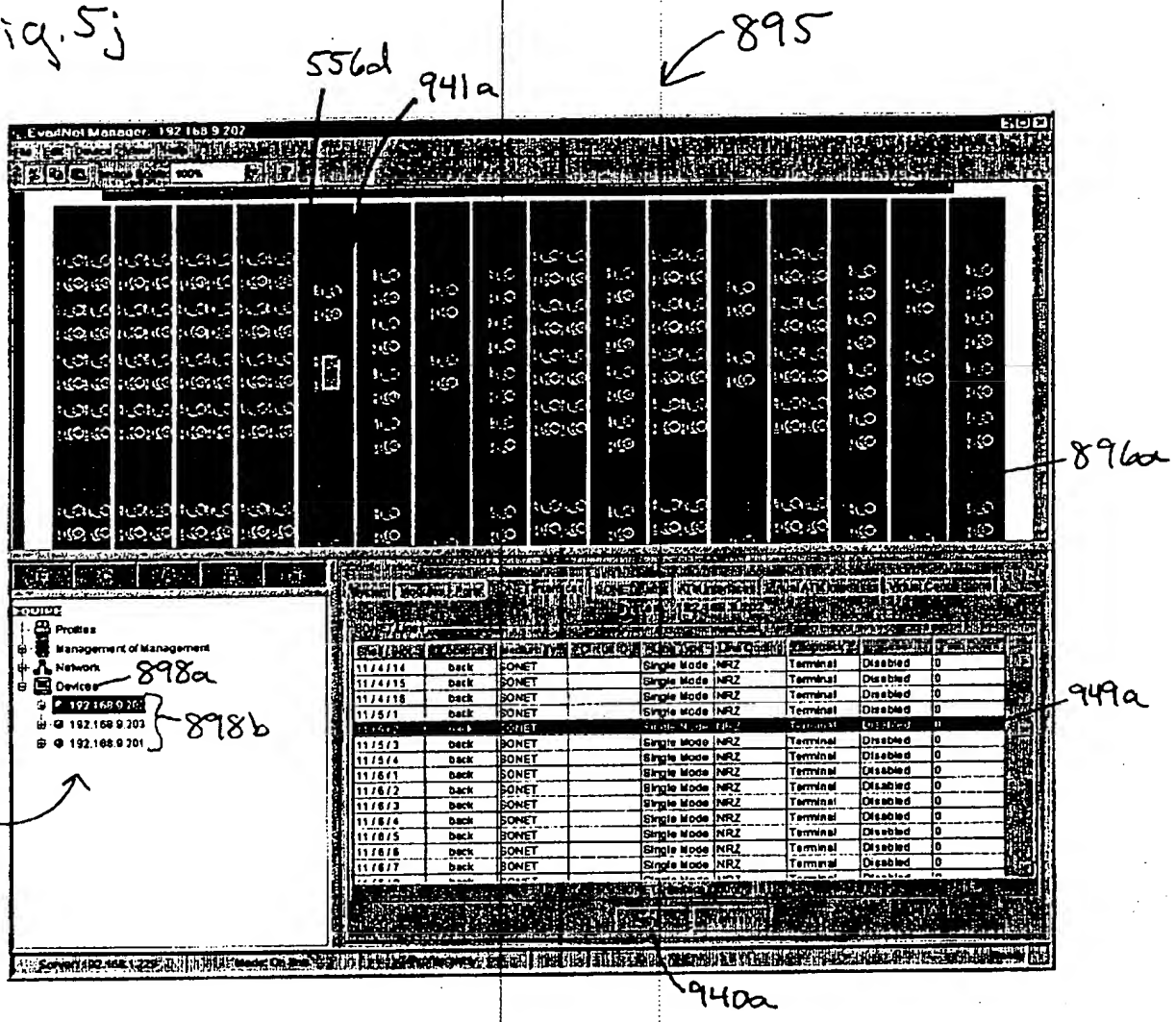

895
556d
941a
896a
898a
898b
898
949a
940a
Profiles
Management of Management
Network
Devices
192.168.9.202
192.168.9.203
192.168.9.201

Fig. 5K

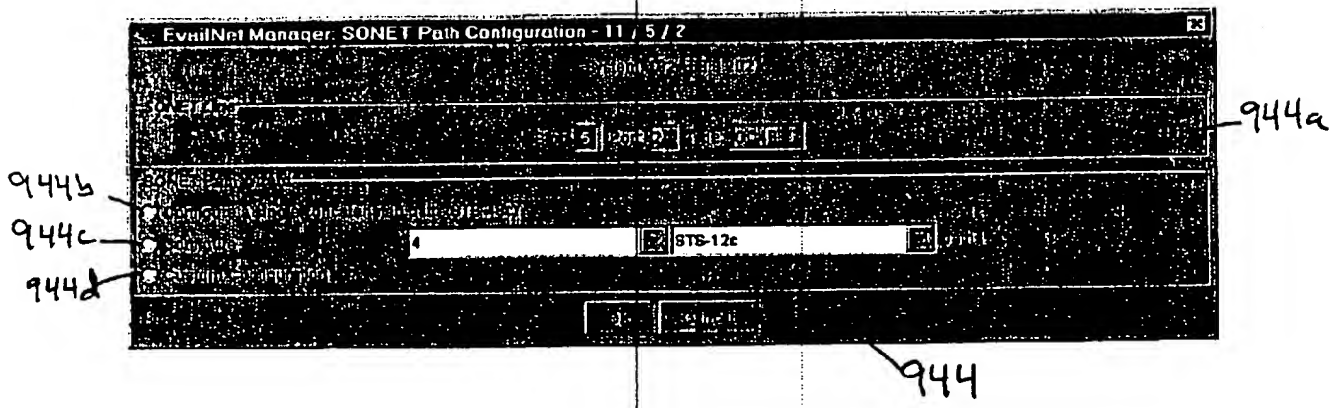
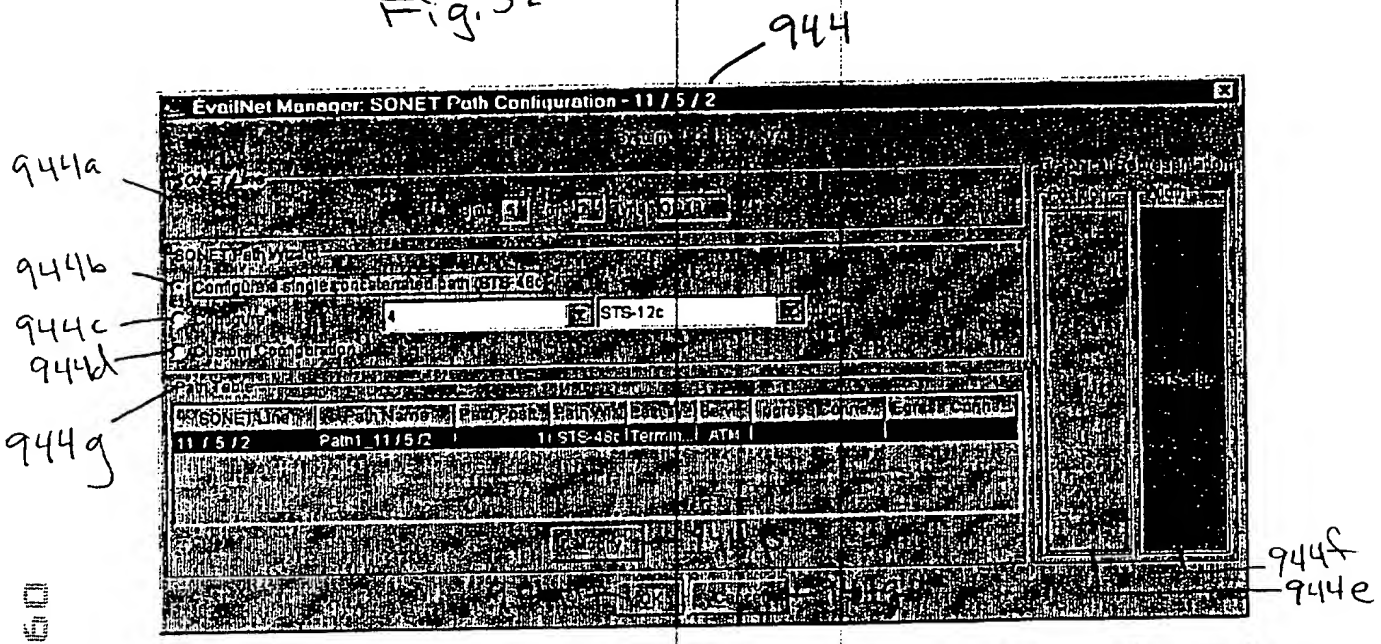

EvenNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
STS-12c
944

Fig. 5l


944
EvailNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
944f
944e
STS-12c
Path1_11/5/2
11 / 5 / 2
ATM

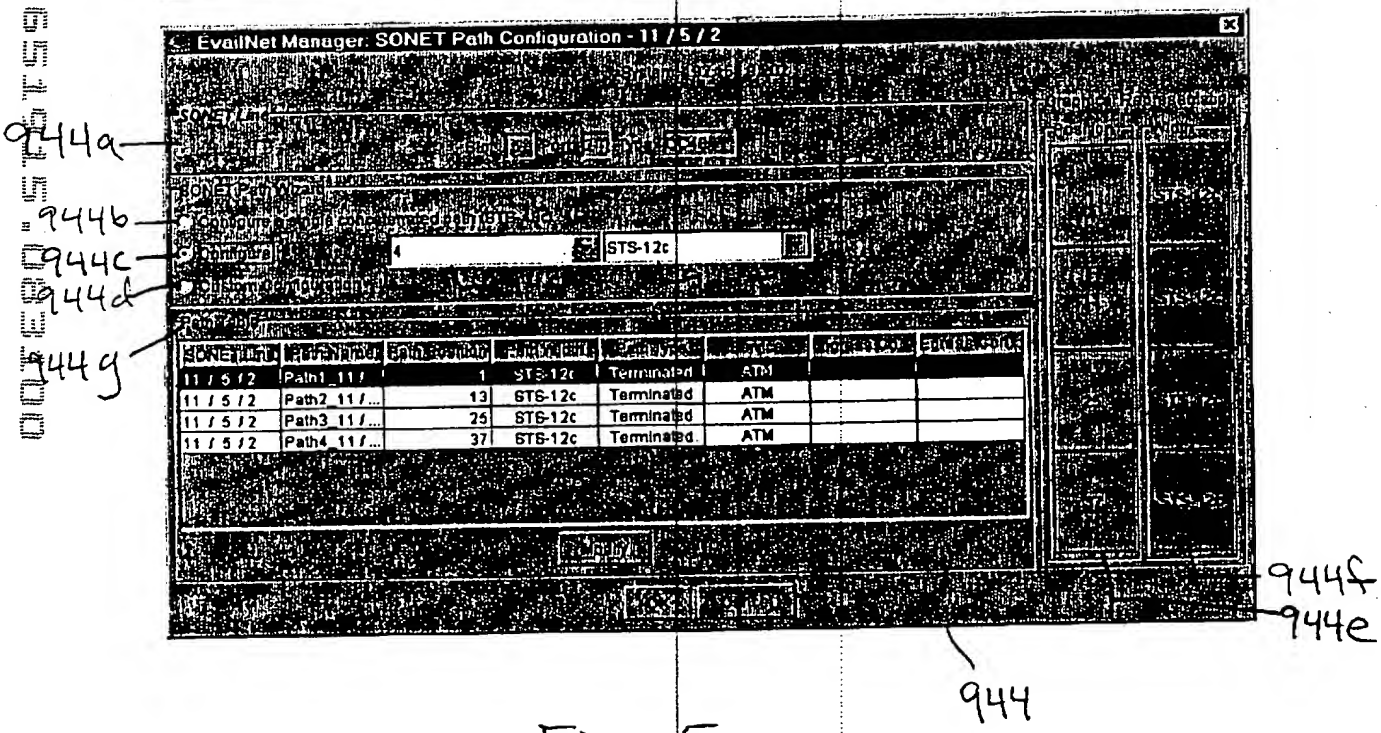

EvailNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
944f
944e
944
STS-12c
11 / 5 / 2 Path1_11/... 1 STS-12c Terminated ATM
11 / 5 / 2 Path2_11/... 13 STS-12c Terminated ATM
11 / 5 / 2 Path3_11/... 25 STS-12c Terminated ATM
11 / 5 / 2 Path4_11/... 37 STS-12c Terminated ATM

Fig. 5m

Fig. 5n

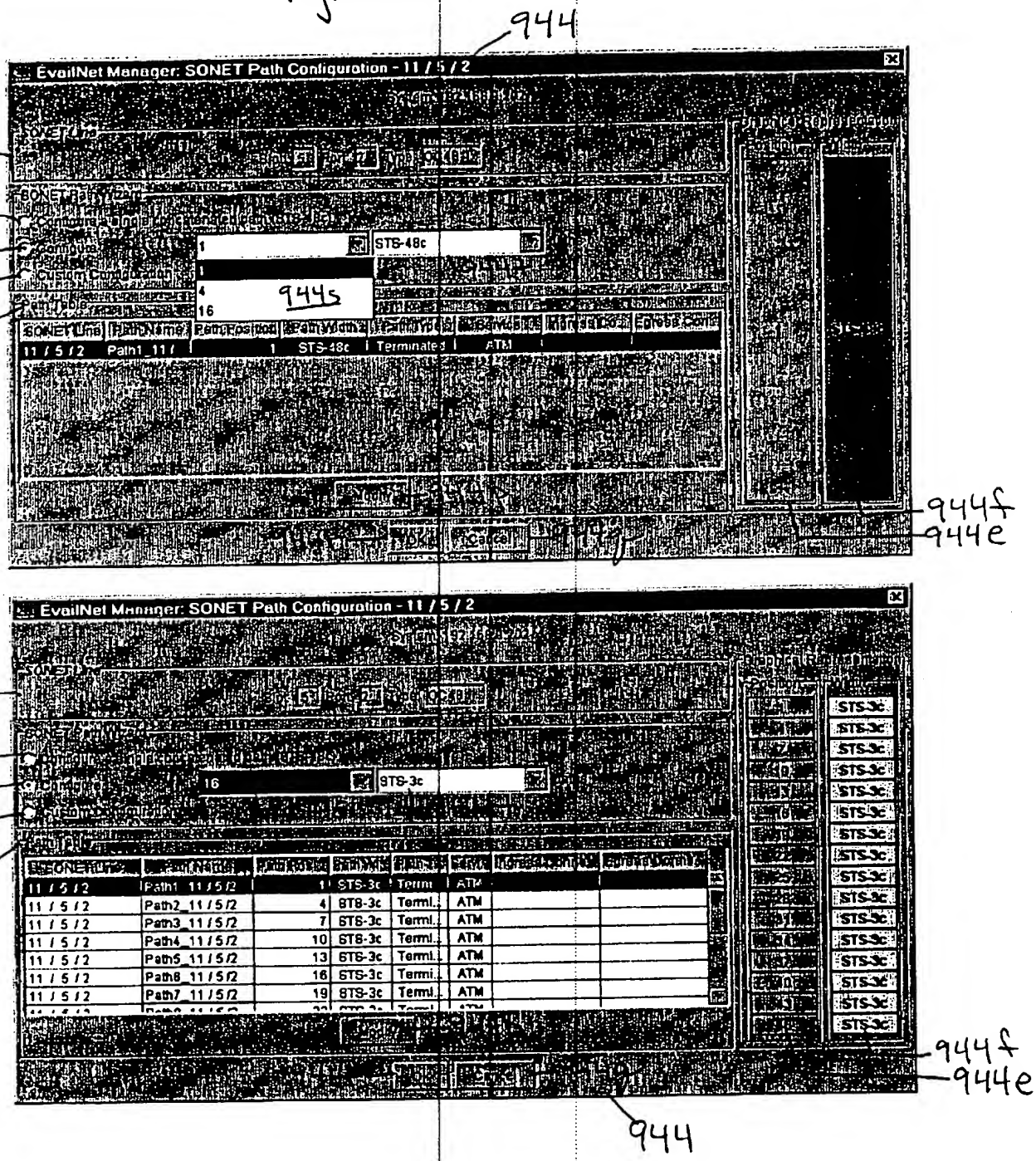

944
EvailNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
944f
944e
STS-48c
STS-3c
944
EvailNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
944f
944e
944

Fig. 5o

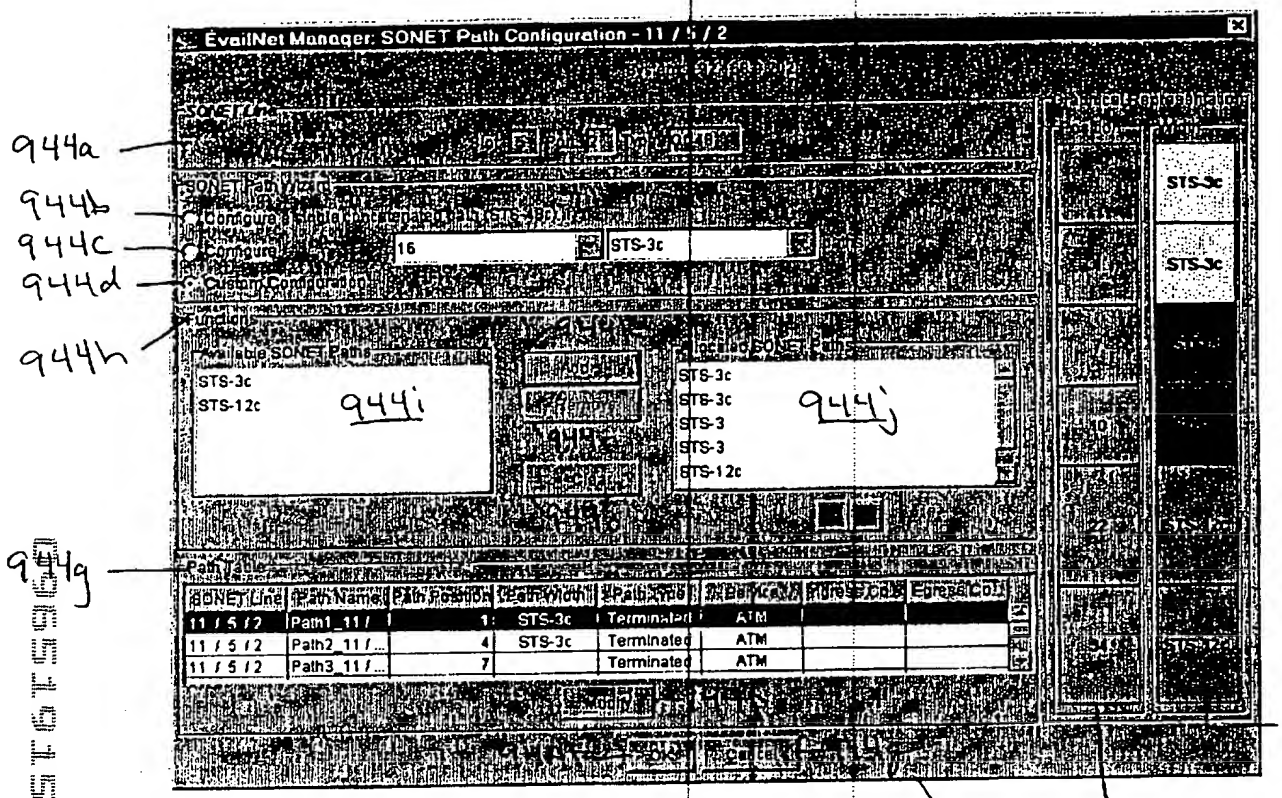


Fig. 5P

0805345.08300

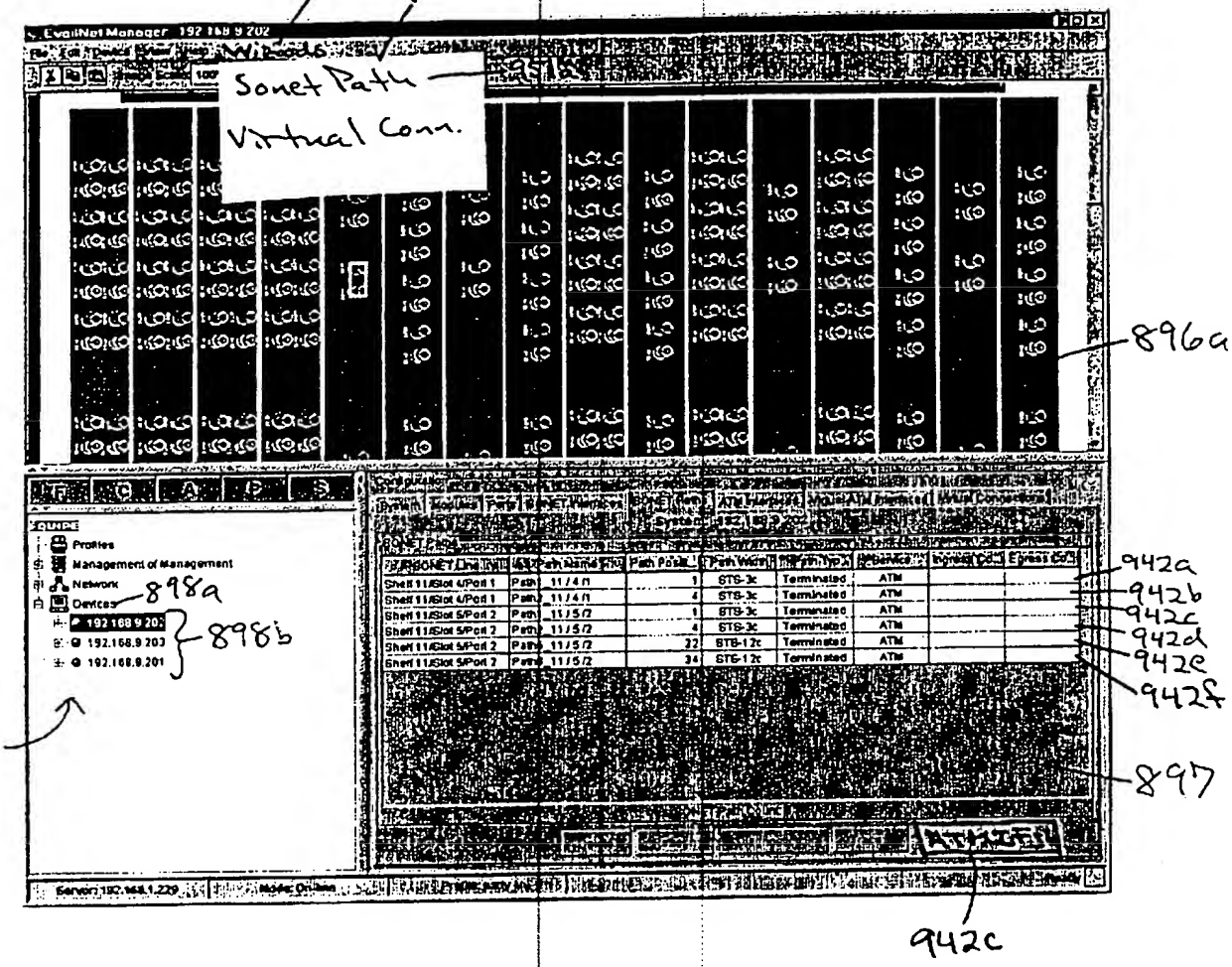


Fig. 5g

0055-0045-0800

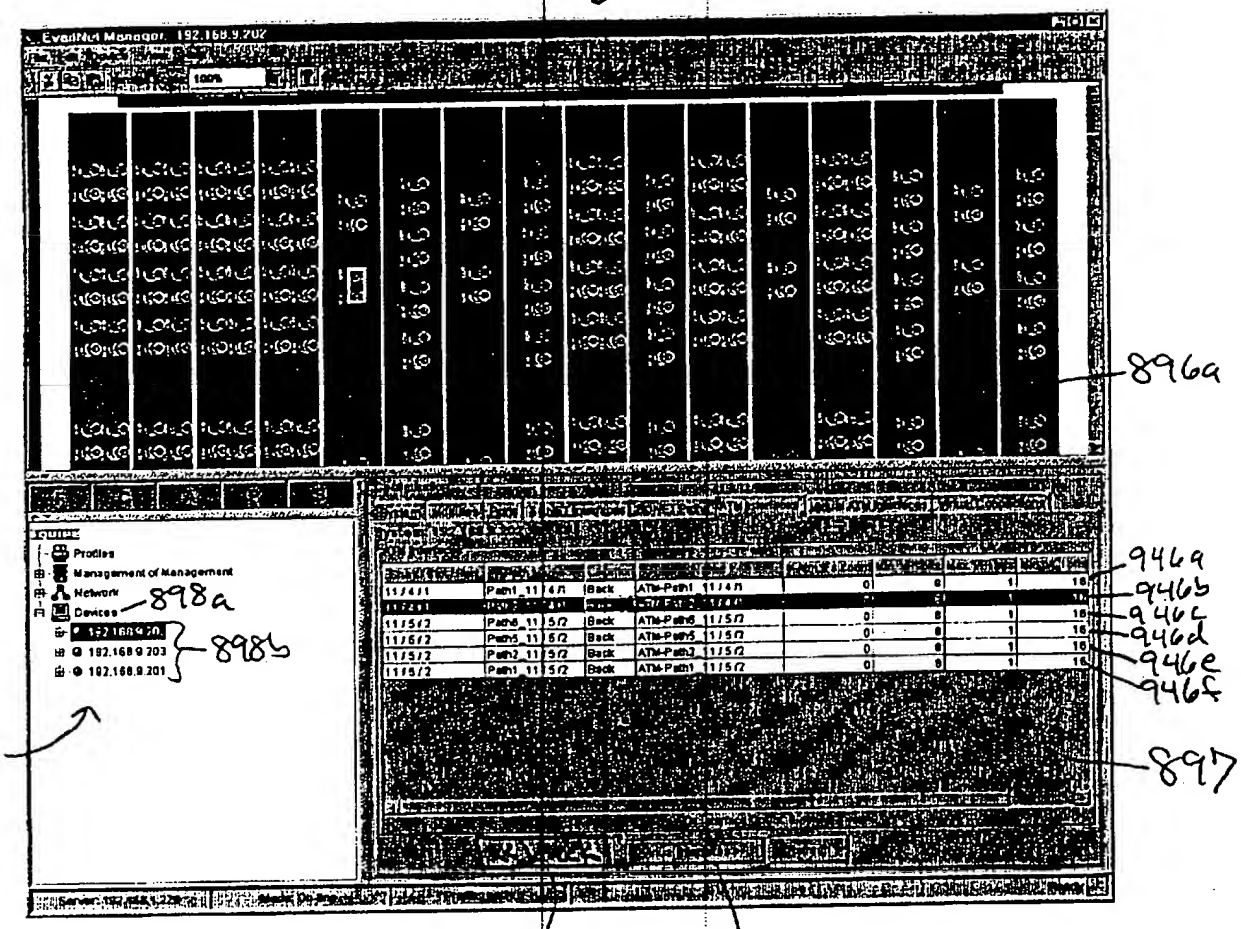

895
896a
898
898a
898b
946a
946b
946c
946d
946e
946f
897
946h
946g

Fig. 5F

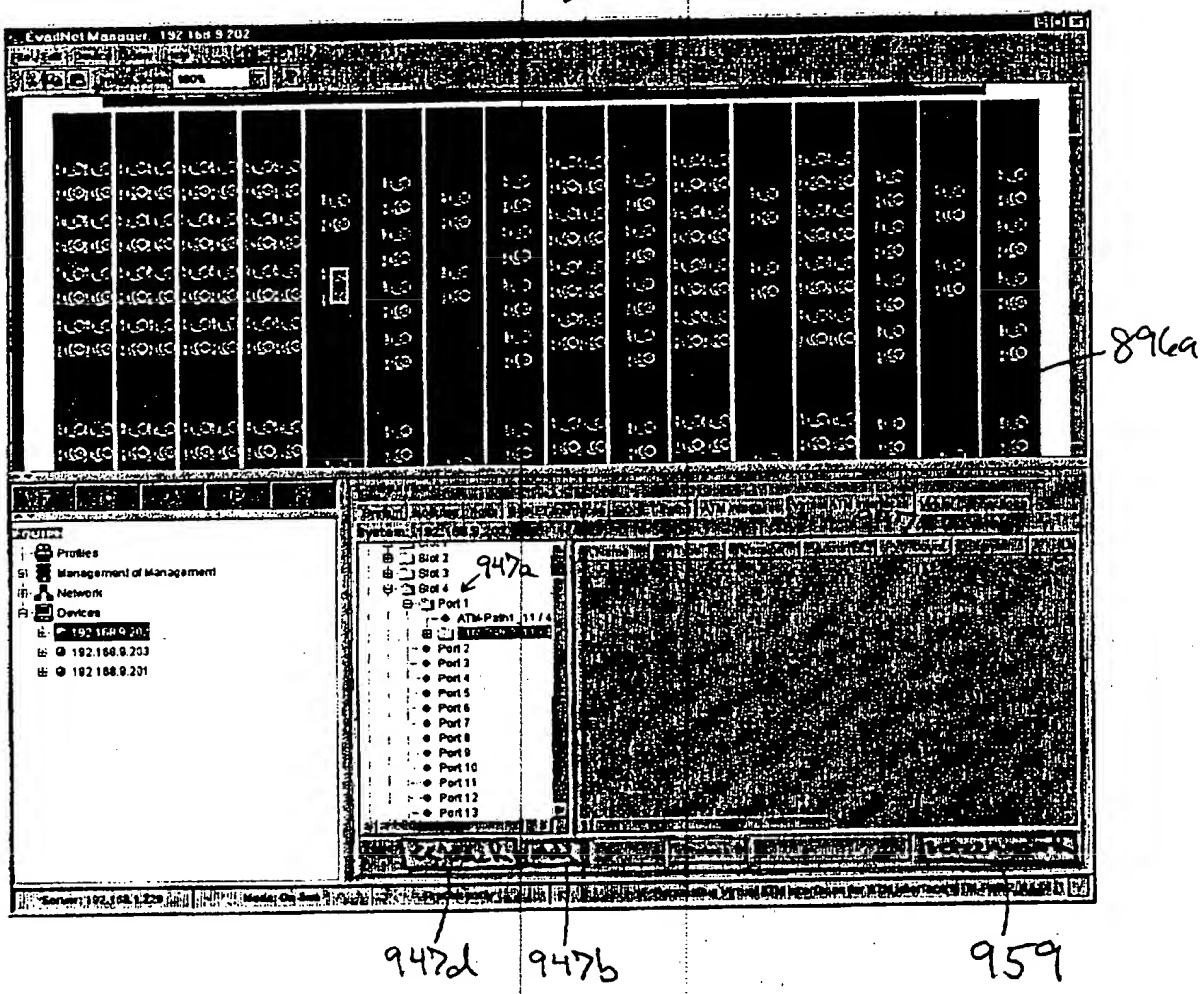
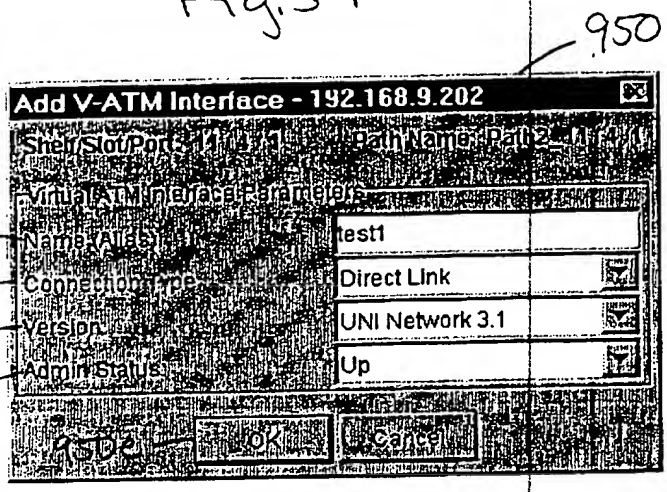


Fig. 5s

DOCKET ALARM

Fig. 5t


950
Add V-ATM Interface - 192.168.9.202
Shelf/Slot/Port
Path Name
Virtual ATM Interface Parameters
950d
Name/Alias
test1
950a
Connection Type
Direct Link
950b
Version
UNI Network 3.1
950c
Admin Status
Up
952
OK
Cancel

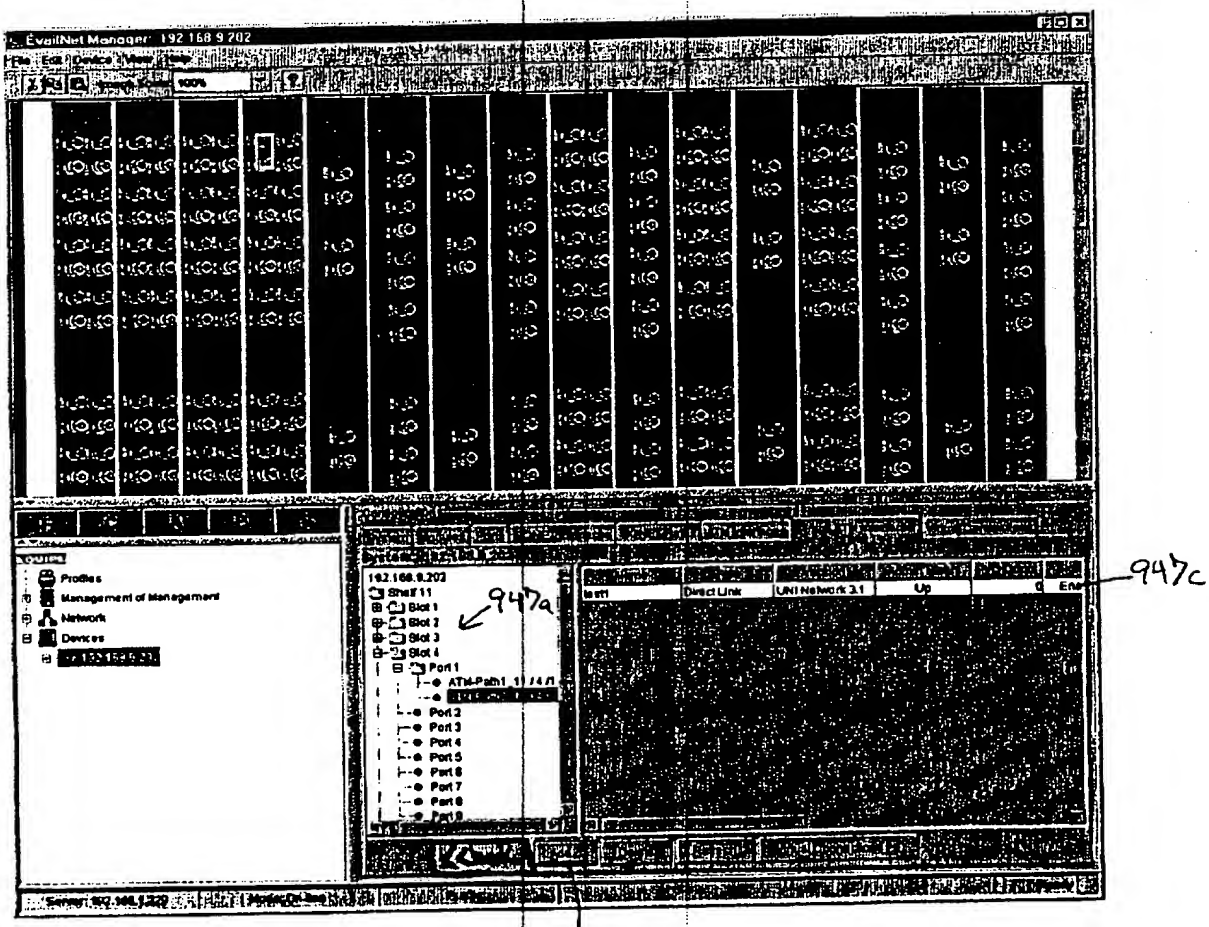

EvoltNet Manager 192.168.9.202
947a
947c
947b

Fig. 5u

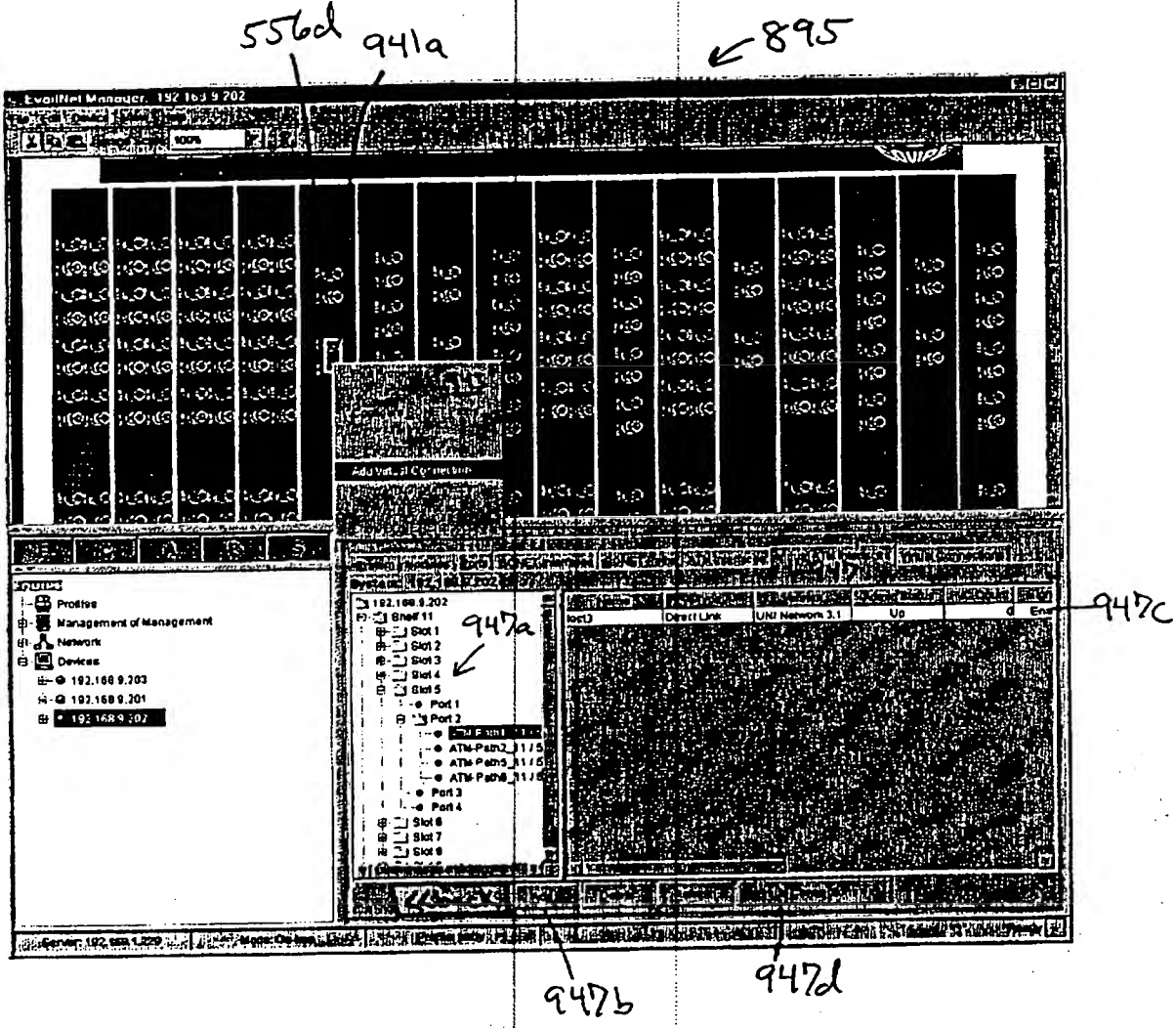
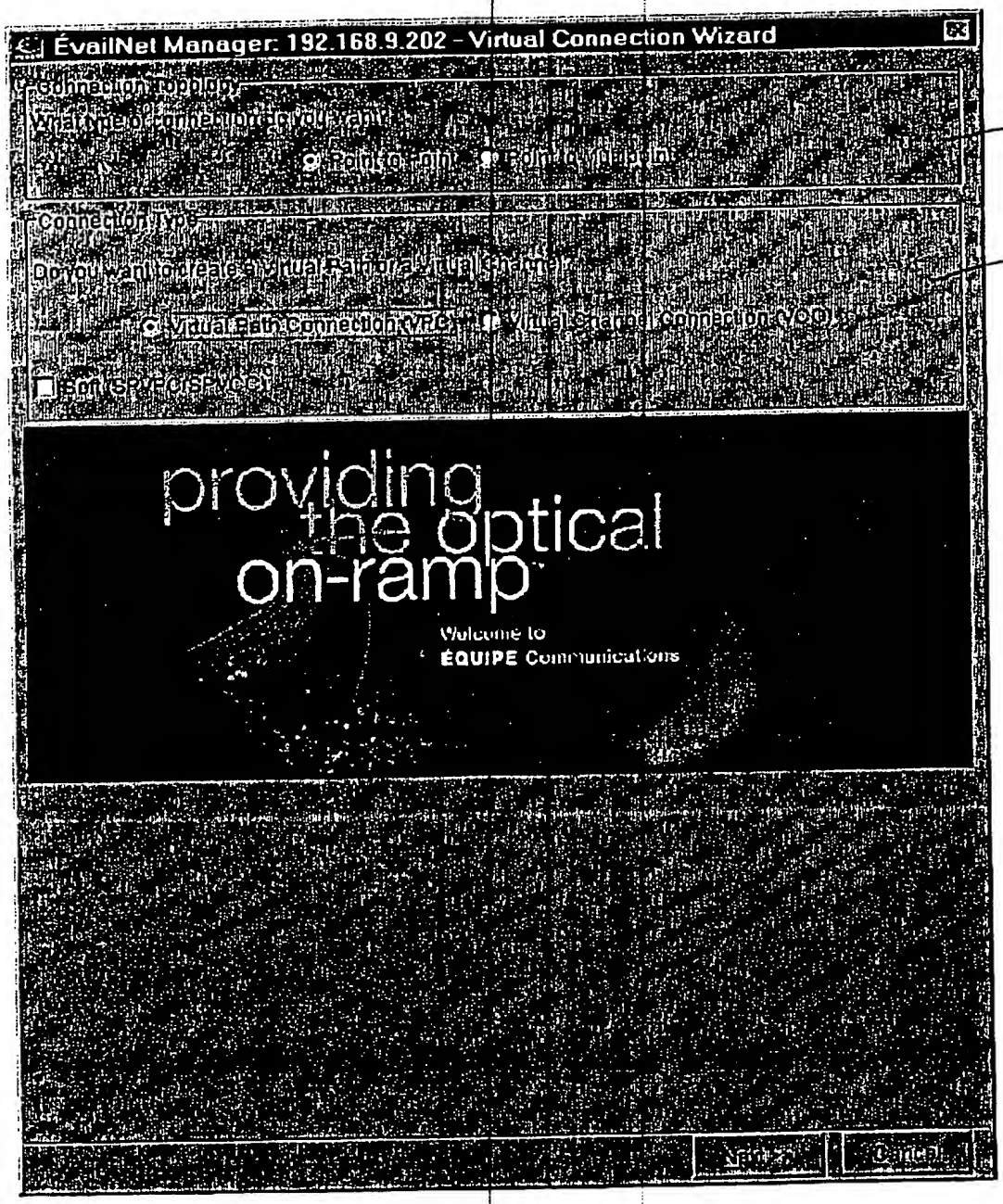


Fig. 5v

09653500.090300

952



952a

952b

Fig. 5w

09553935.083100

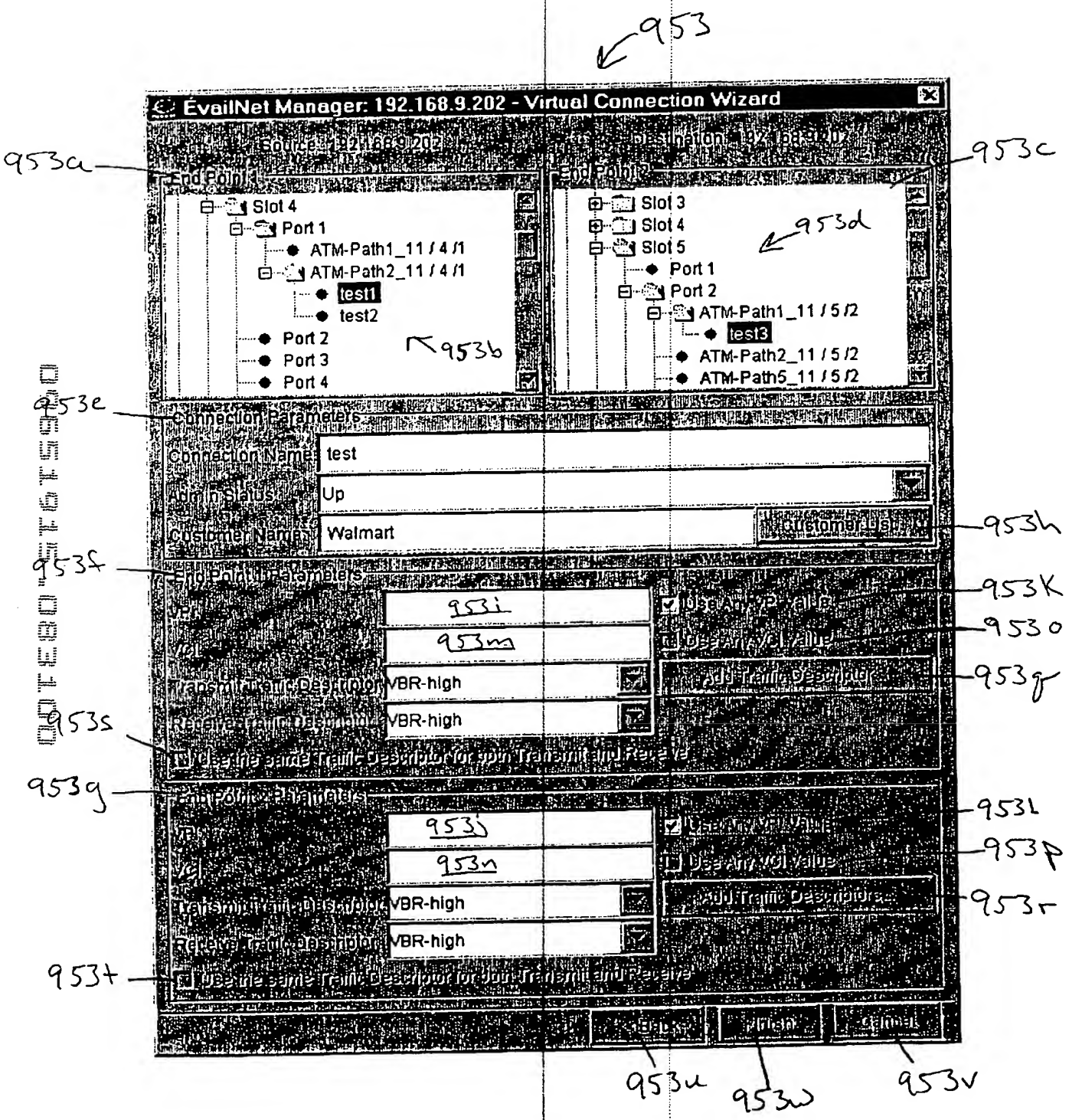

953
EvailNet Manager: 192.168.9.202 - Virtual Connection Wizard
953a
End Point1
Slot 4
Port 1
ATM-Path1_11 / 4 /1
ATM-Path2_11 / 4 /1
test1
test2
Port 2
Port 3
Port 4
953b
953c
End Point2
Slot 3
Slot 4
Slot 5
953d
Port 1
Port 2
ATM-Path1_11 / 5 /2
test3
ATM-Path2_11 / 5 /2
ATM-Path5_11 / 5 /2
953e
Connection Parameters
Connection Name:
test
Admin Status:
Up
Customer Name:
Walmart
953h
953f
End Point1 Parameters
953i
953m
Transmit Traffic Descriptor:
VBR-high
Receive Traffic Descriptor:
VBR-high
953k
953o
953g
953s
Use the same Traffic Descriptor for both Transmit and Receive
953q
End Point2 Parameters
953j
953n
Transmit Traffic Descriptor:
VBR-high
Receive Traffic Descriptor:
VBR-high
953l
953p
953r
953t
Use the same Traffic Descriptor for both Transmit and Receive
953u
953w
953v

Fig. 5x

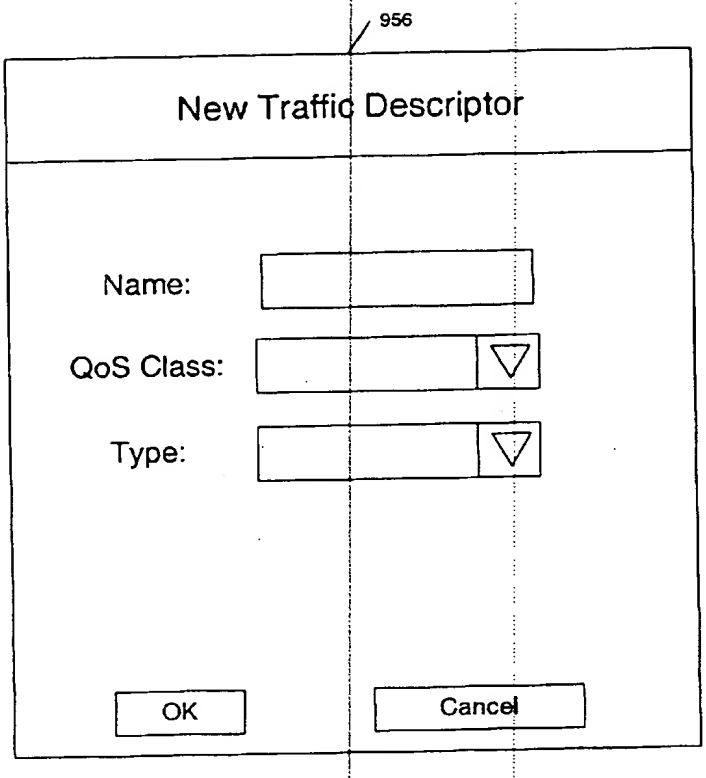


Fig. 5Y

0060-0605-0605-0605-0605-0605-0605-0605

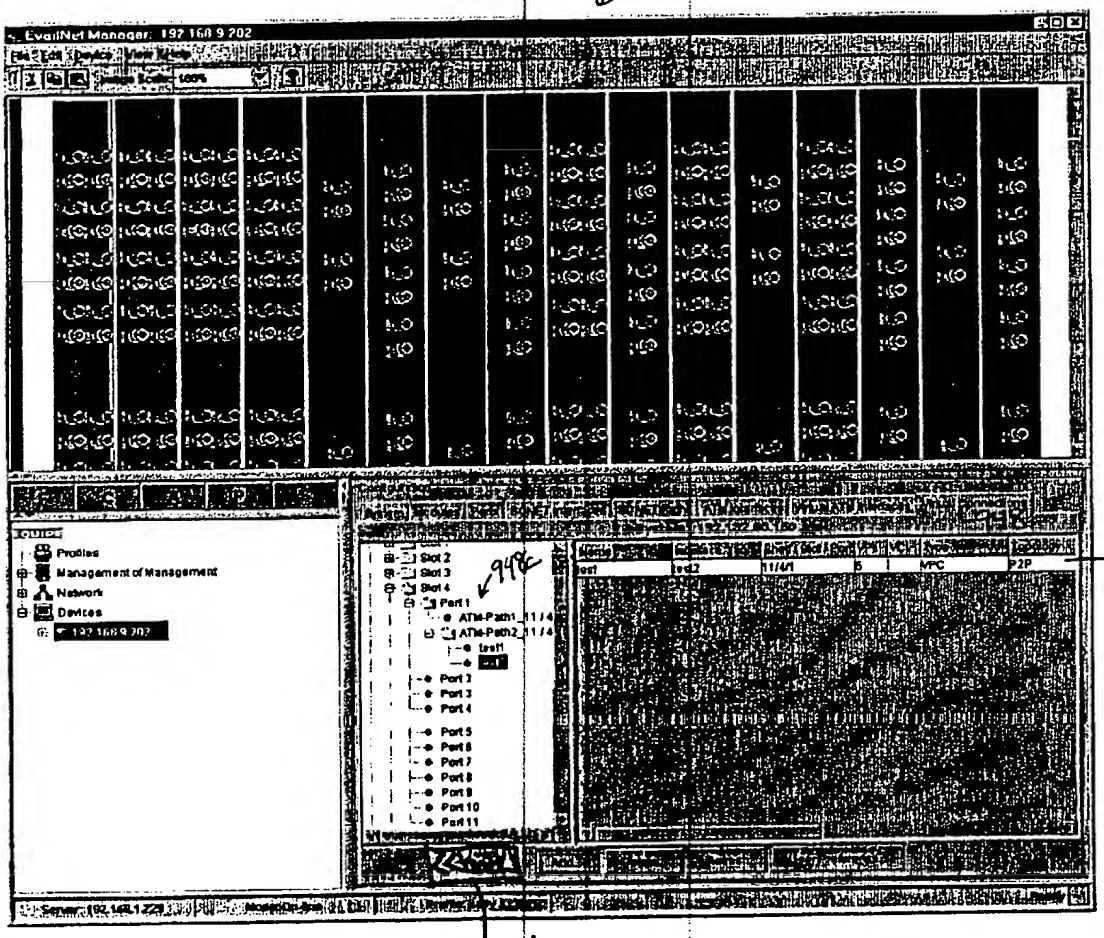

895
948a
948b
948
EvalNet Manager: 192.168.9.202
Profiles
Management of Management
Network
Devices
Slot 2
Slot 3
Slot 4
Port 1
ATM-Path1_11/4
ATM-Path2_11/4
test1
Port 2
Port 3
Port 4
Port 5
Port 6
Port 7
Port 8
Port 9
Port 10
Port 11

Fig. 57

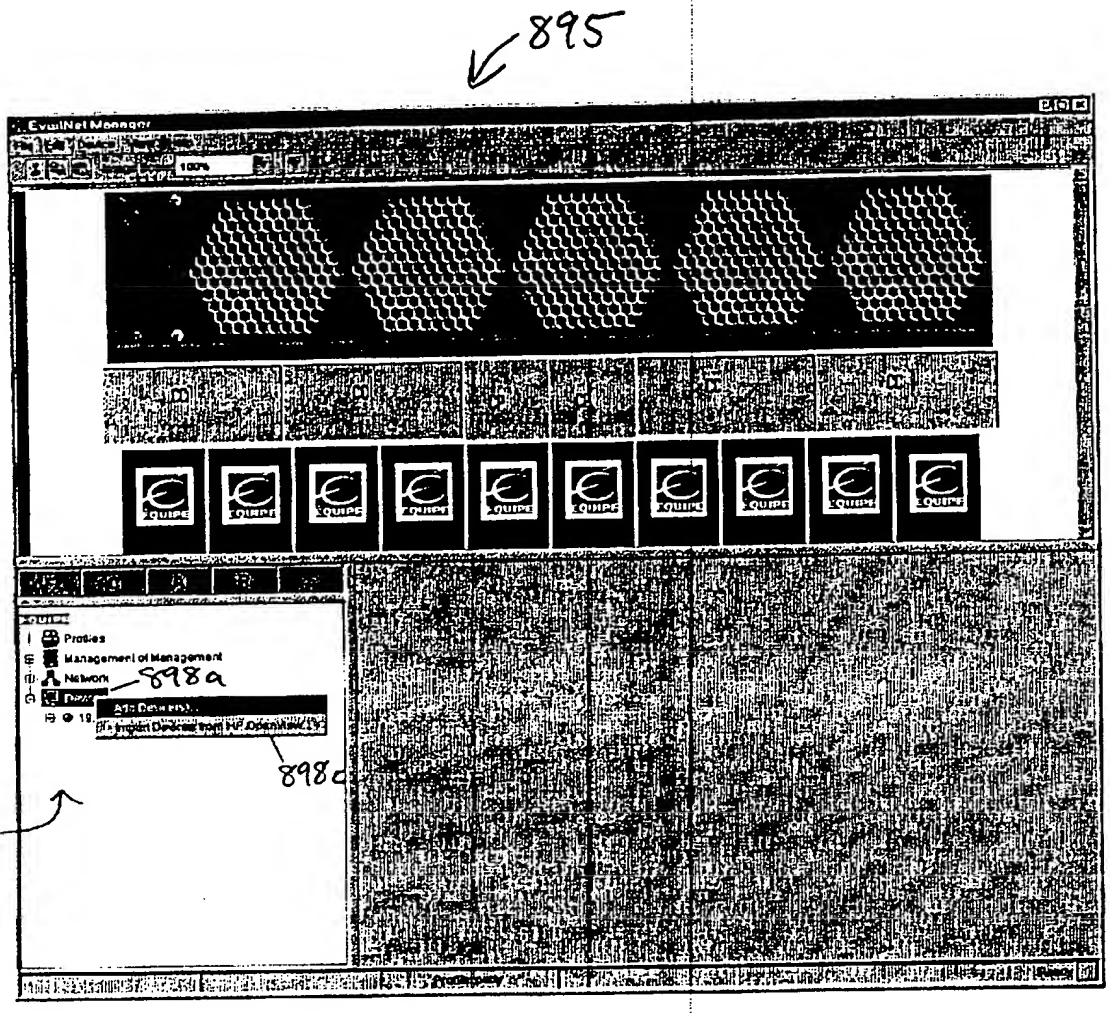


Fig. 6a

DOCKET A L A R M

Fig. 6b

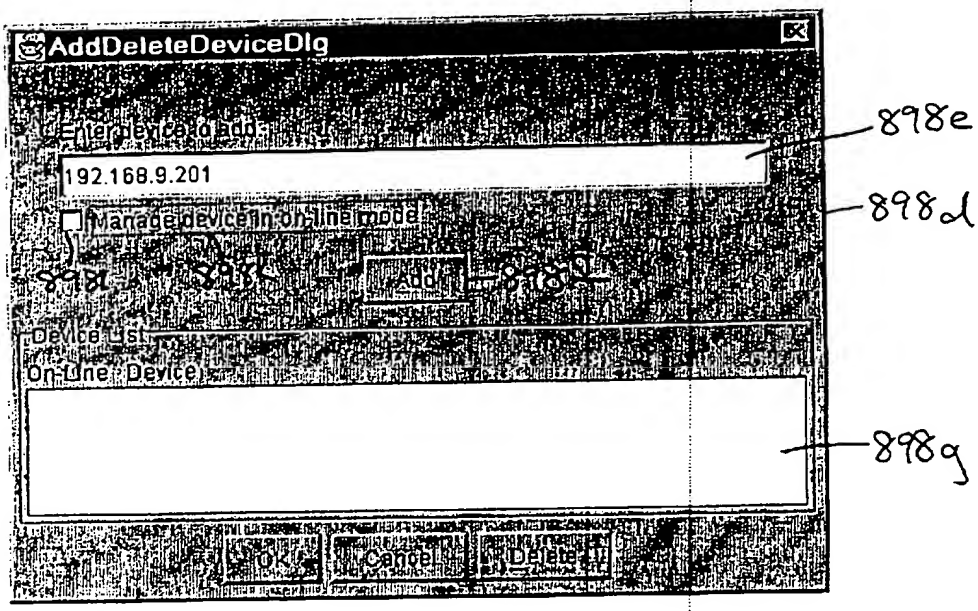
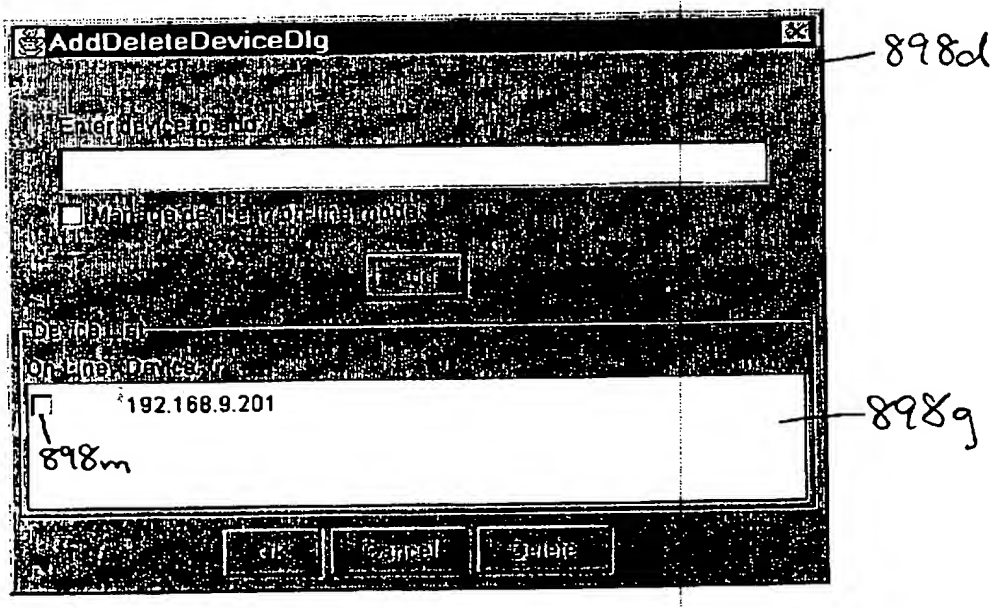


Fig. 6c



09/15/2005 15:39 0956

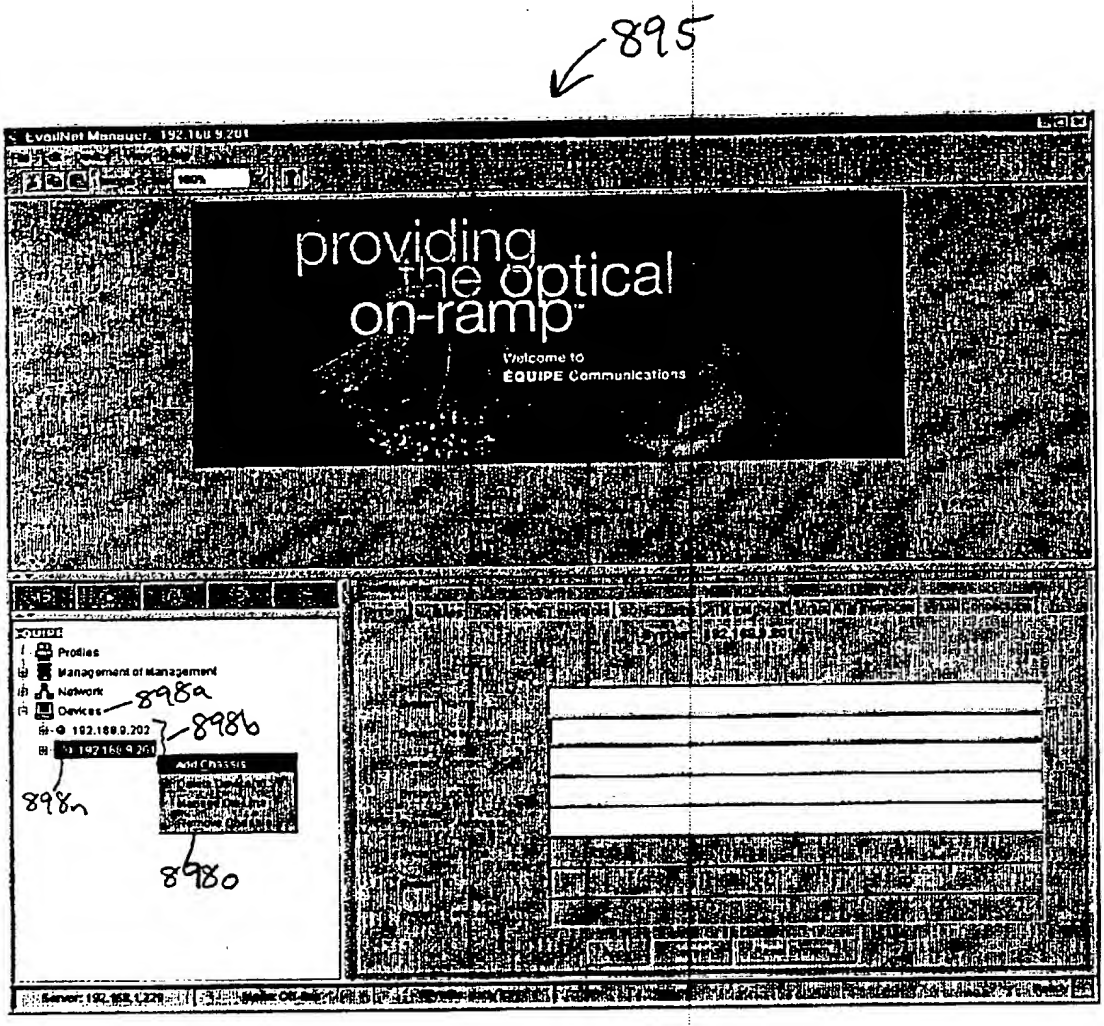


Fig. 6d

0965245.0003100

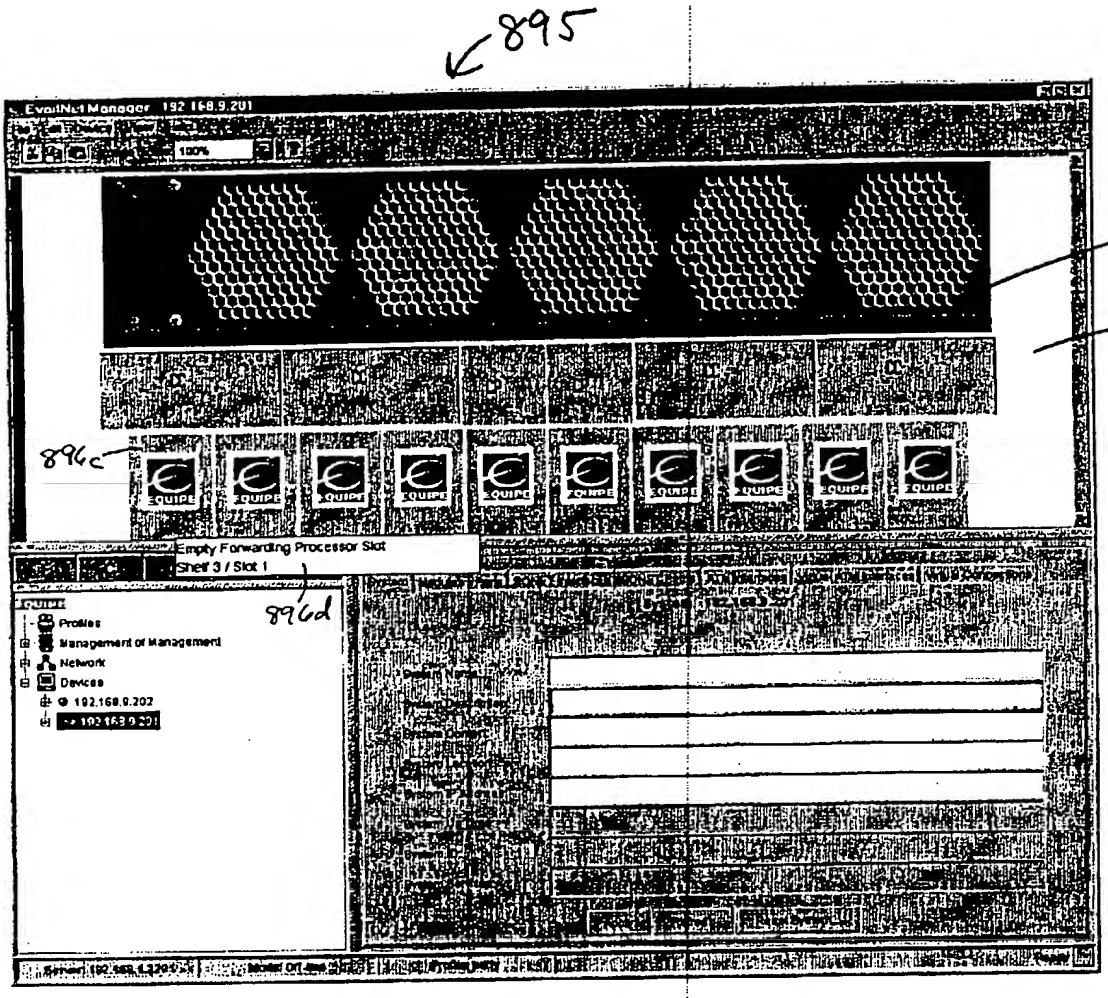


Fig. 6e

0065-0065-0065-0065

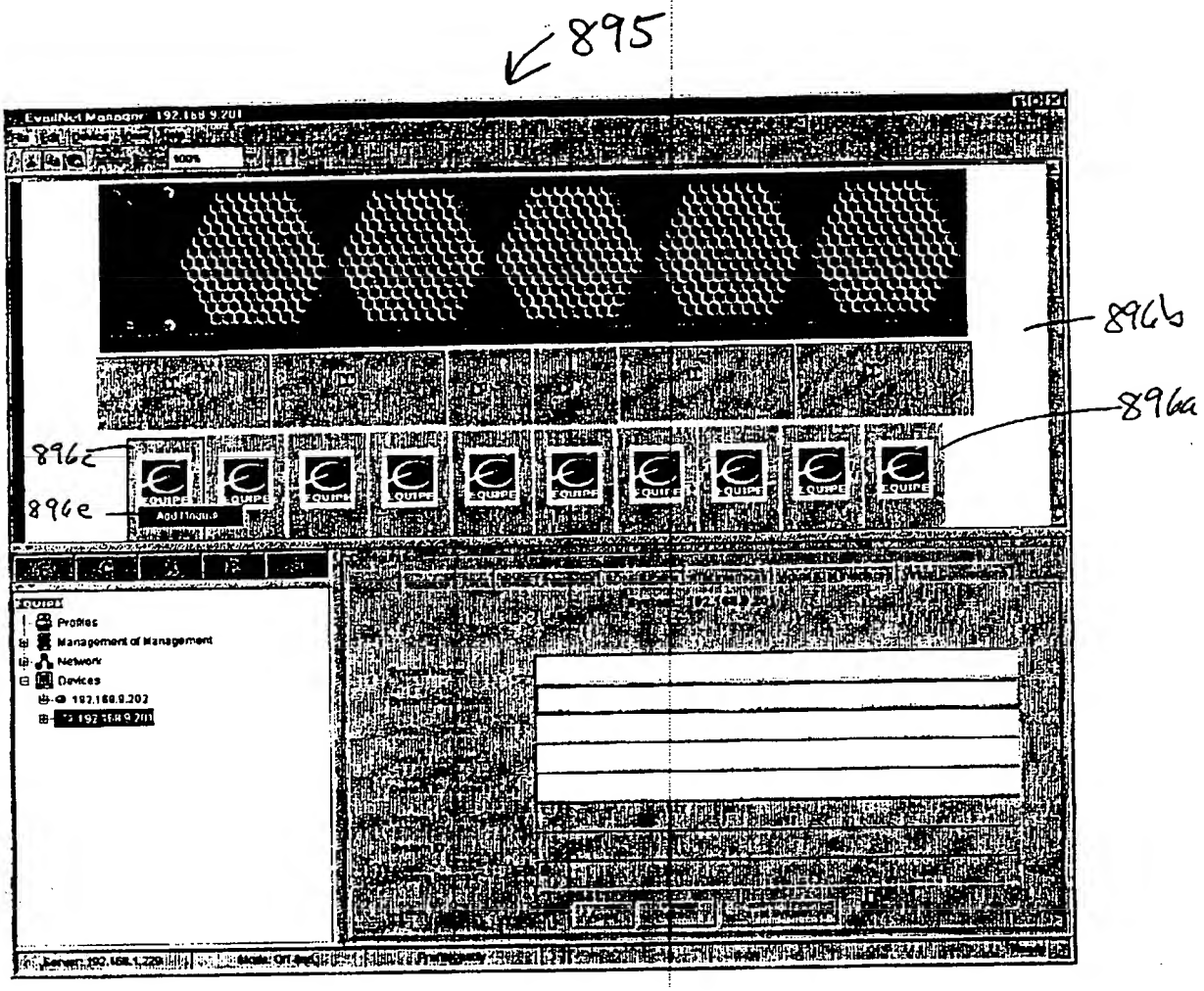


Fig. 6f

0 5 7 5 - 0 0 0 1 0

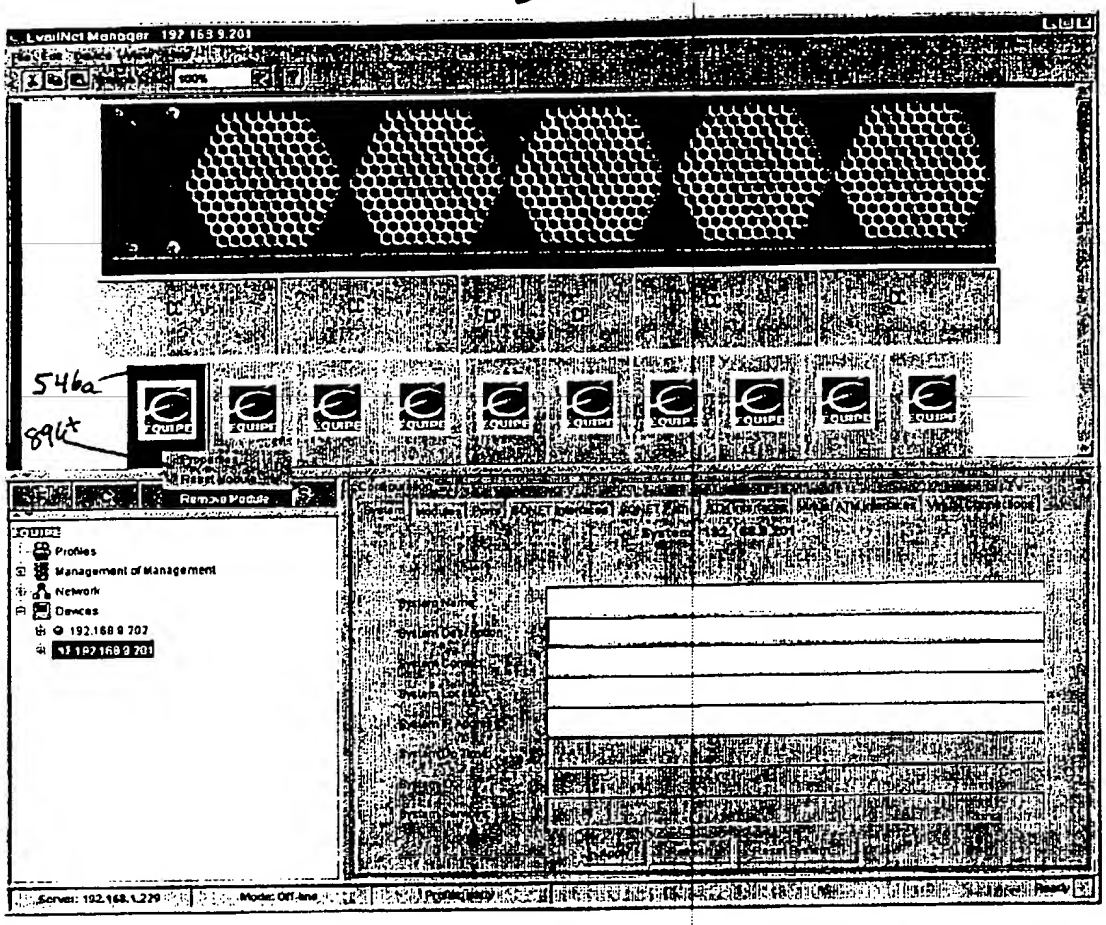


Fig. 6g

0065195.00100

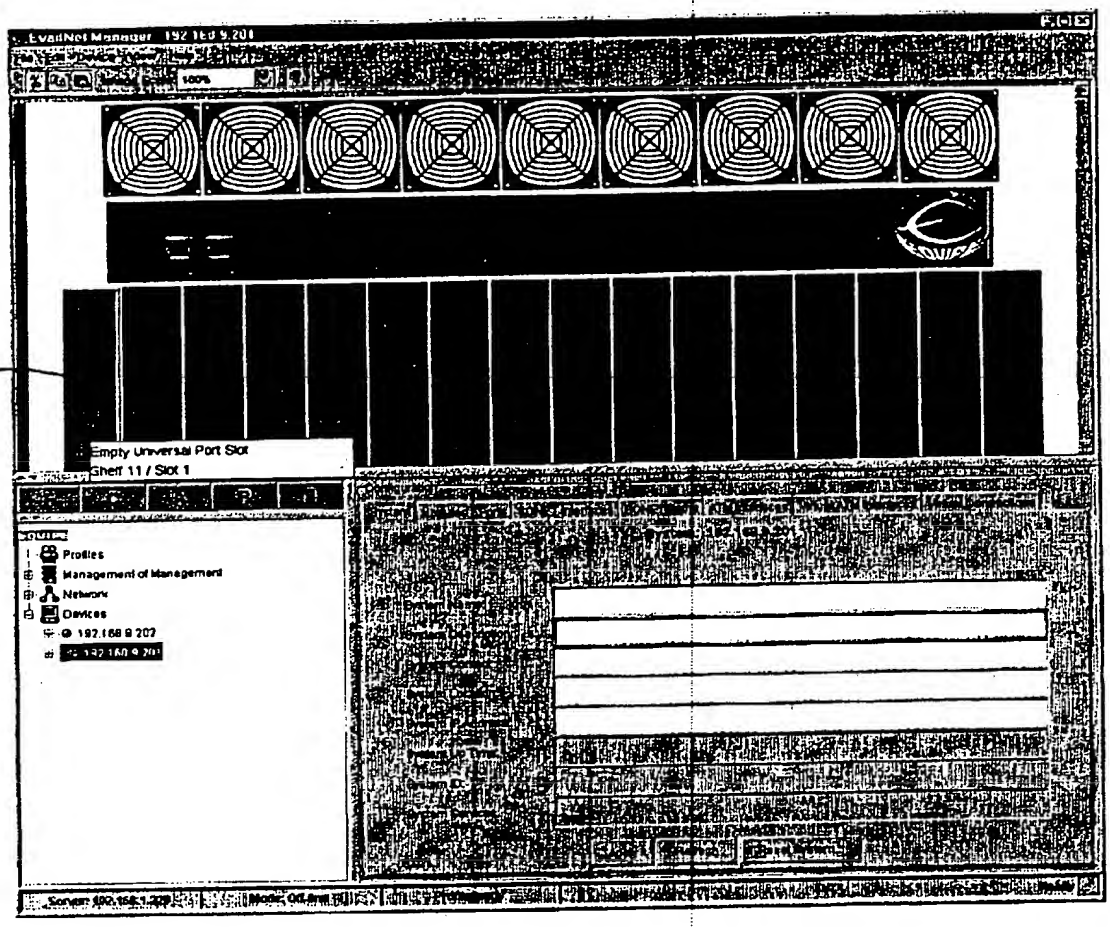


Fig. 6h

DOCUMENT 6

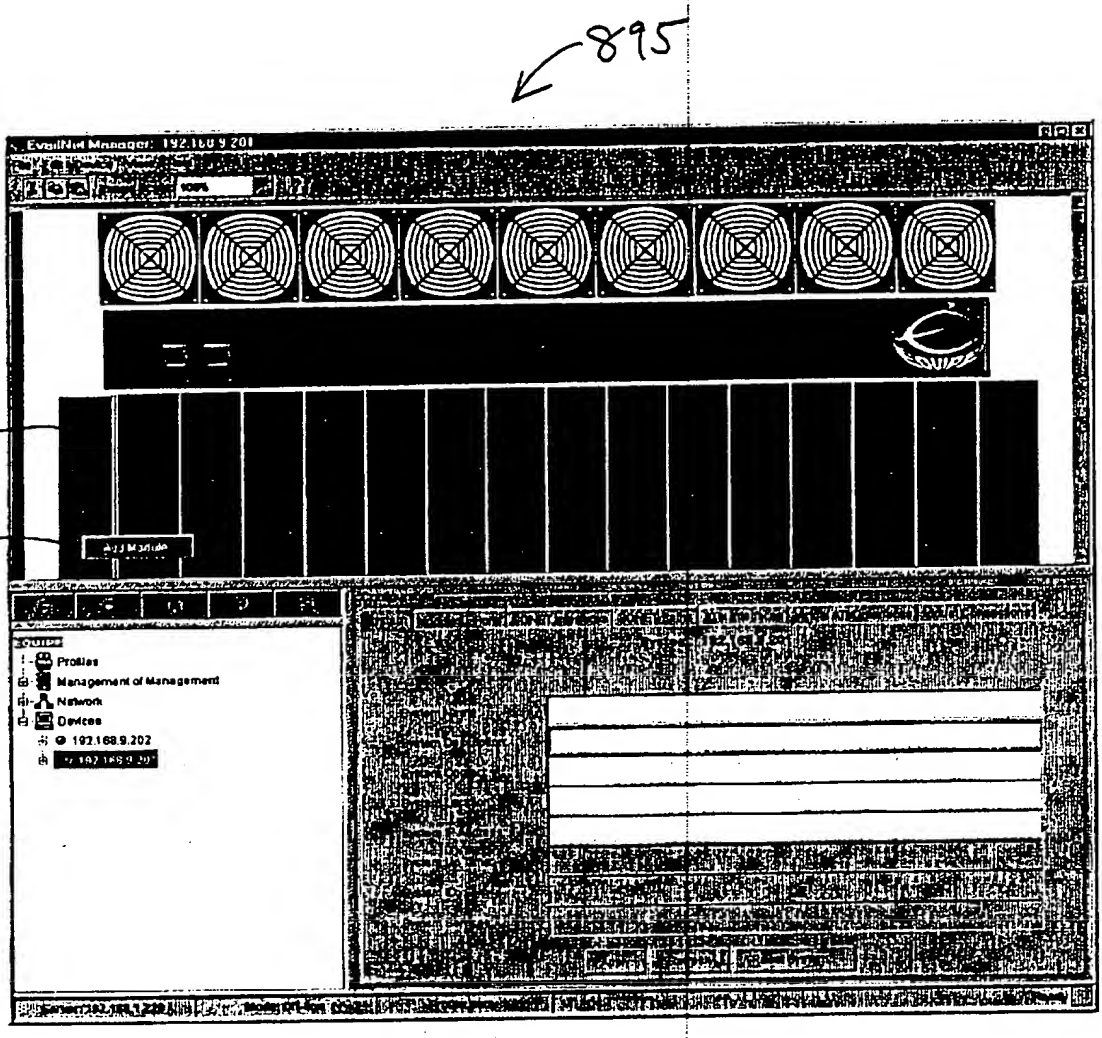
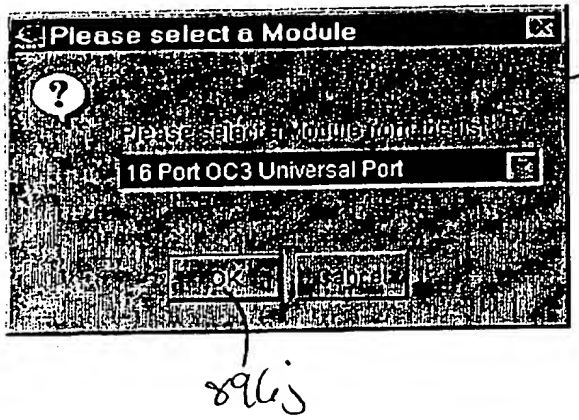


Fig. 6i

09054945 - 0034400

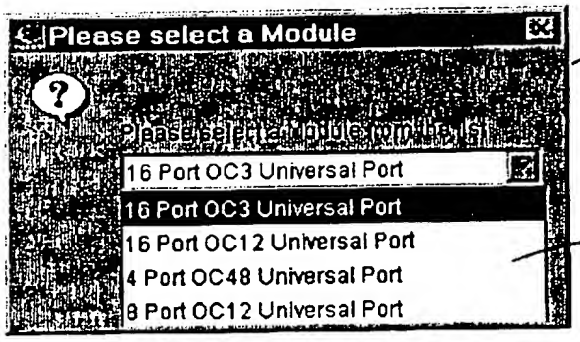
Fig. 6J



896h

896j

09054545-080400



896h

896i

Fig. 6K

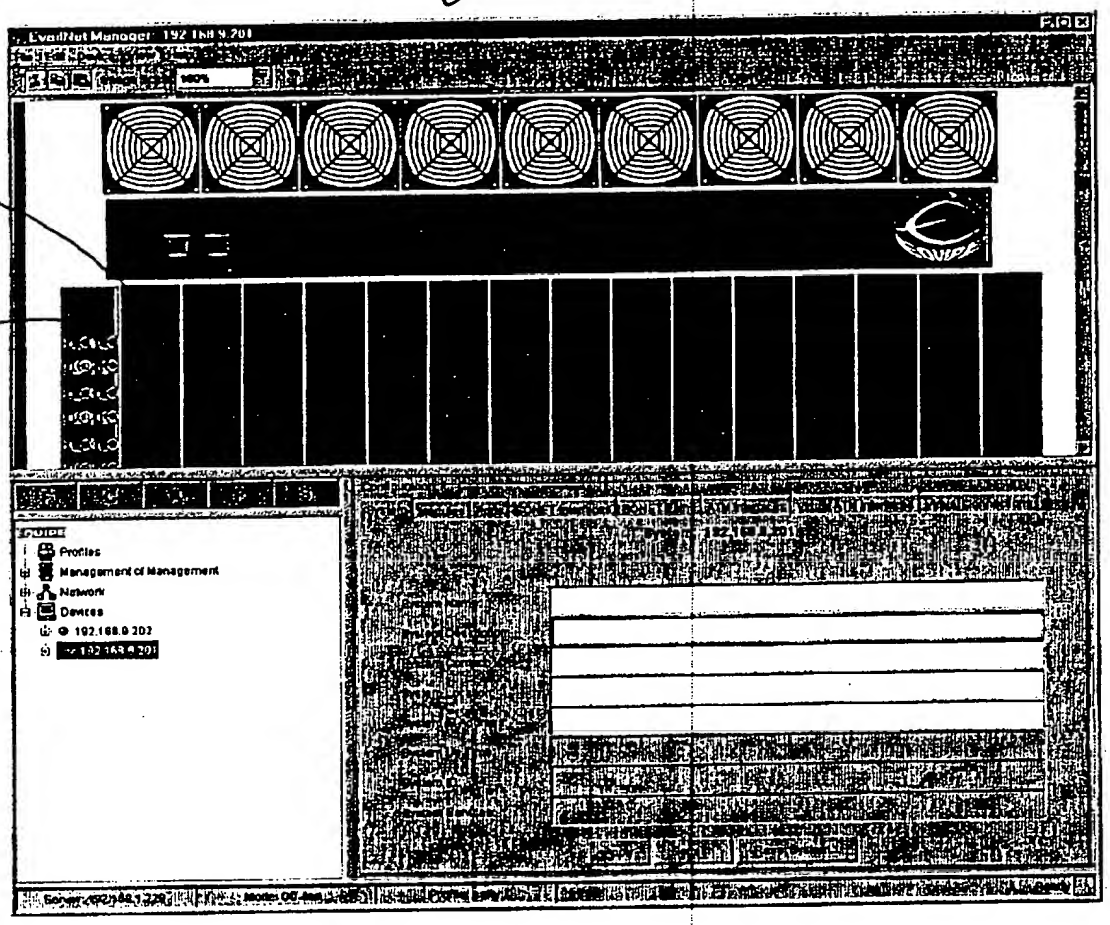


Fig. 6L

DOCKET ALARM

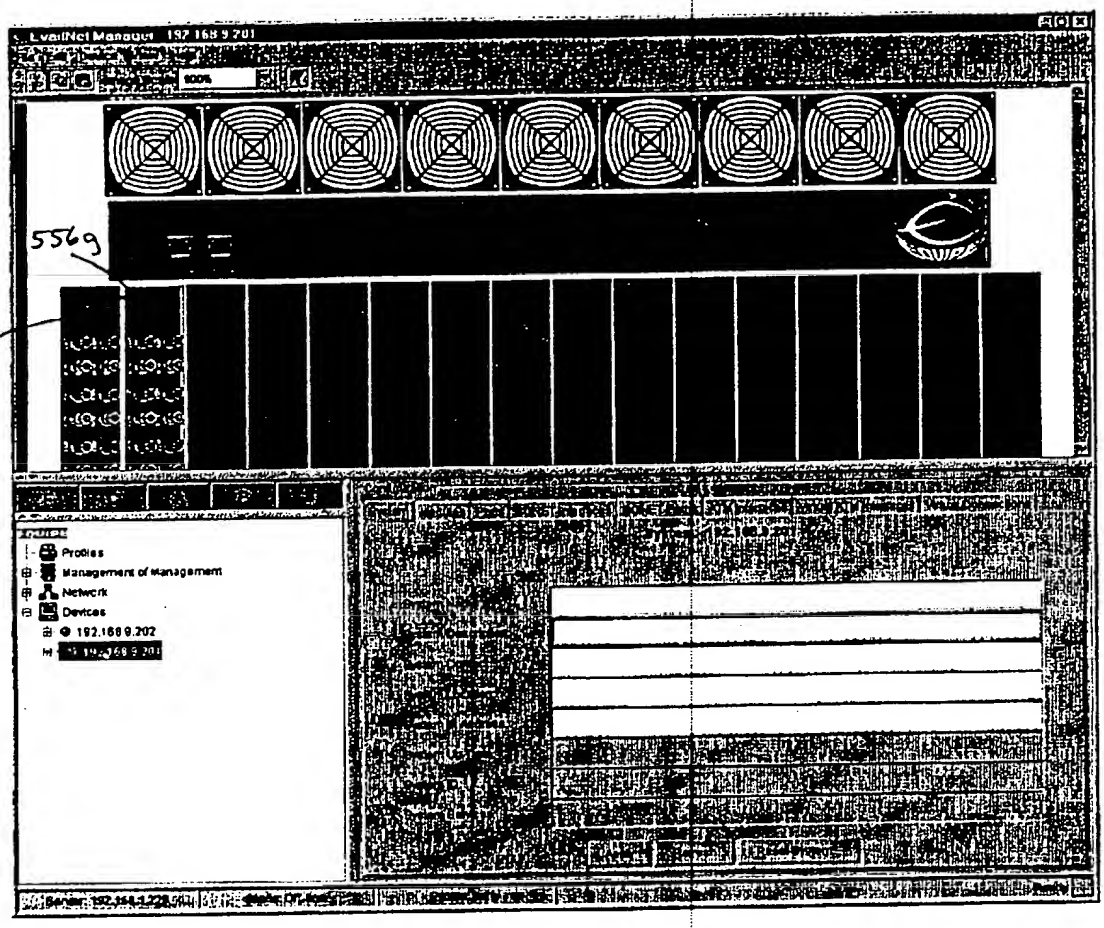


Fig.6m

0074-0005-0375-0900

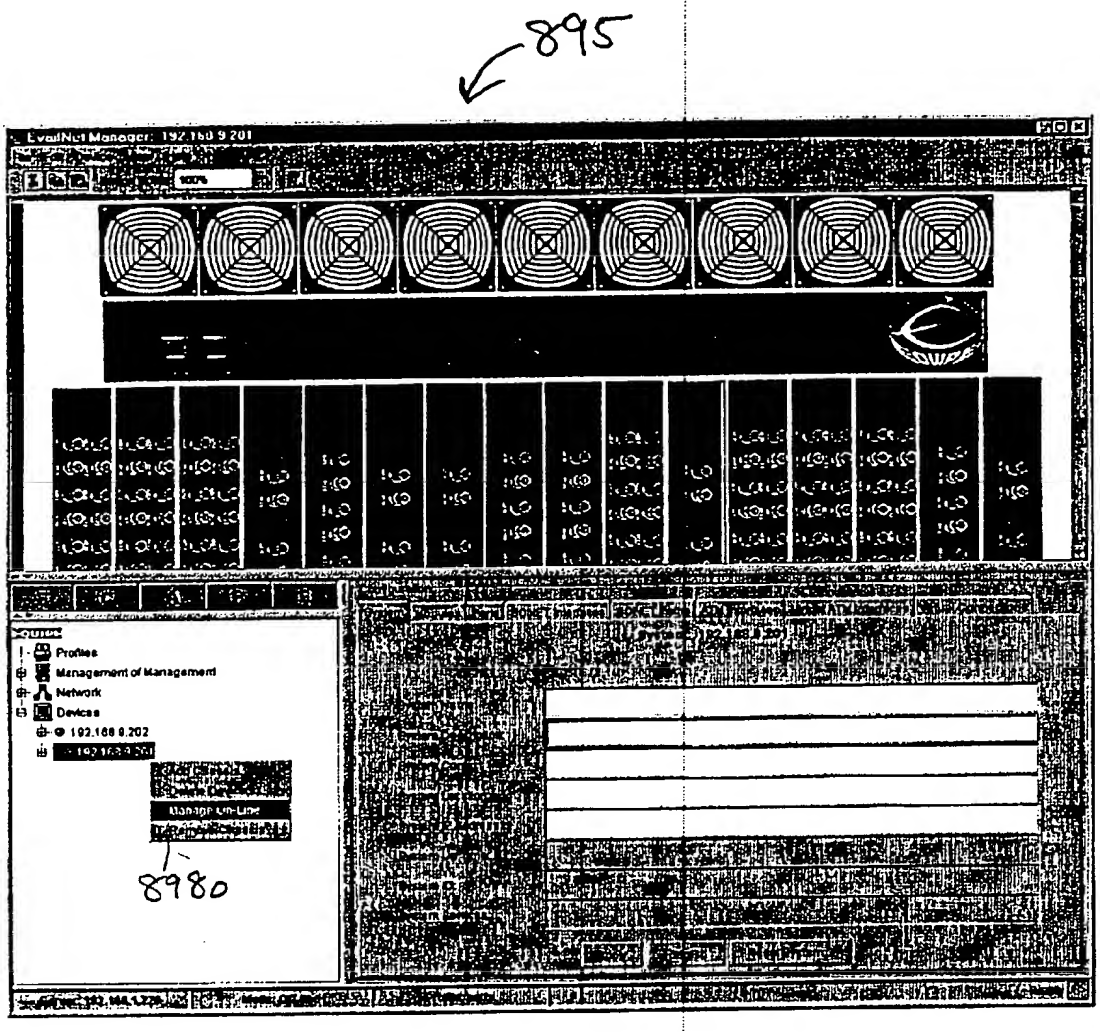


Fig. 6n

0078080-5456-5960

895

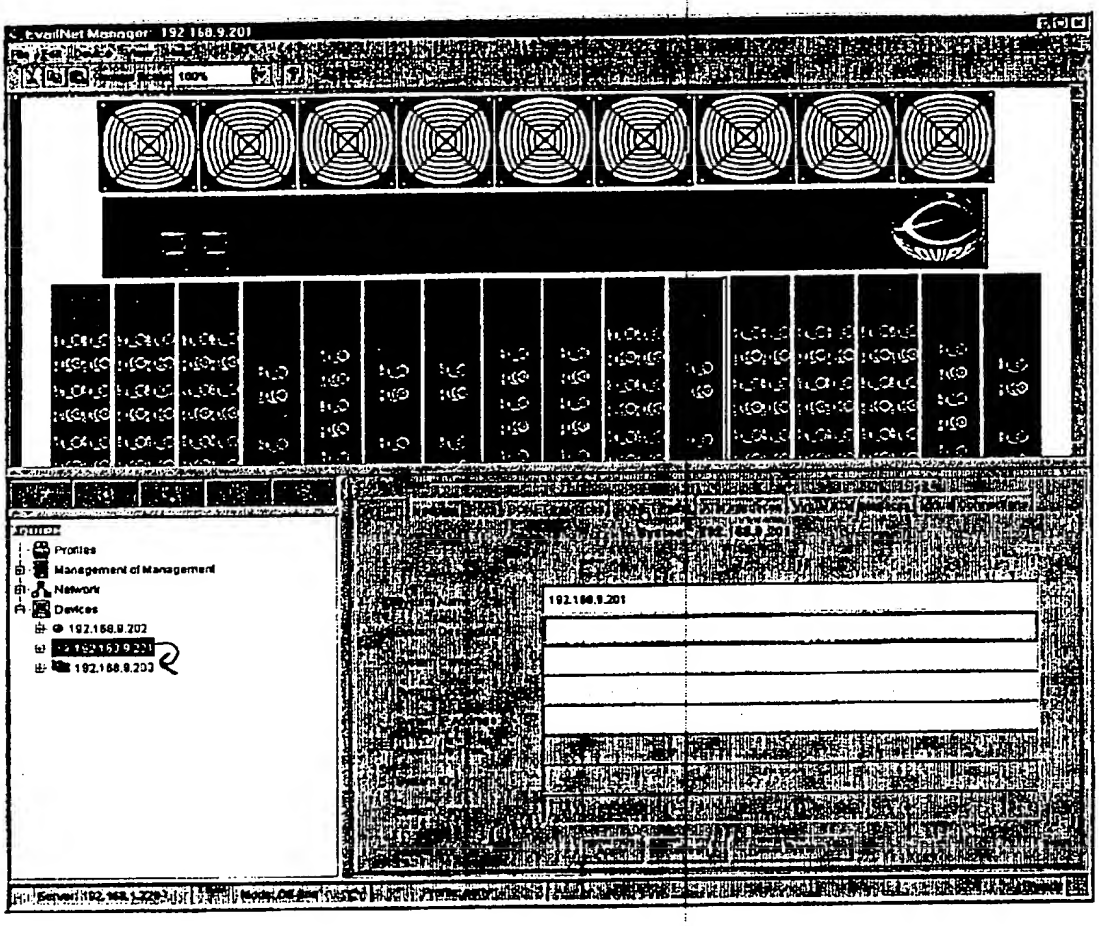


Fig. 6o

0074380-5745960

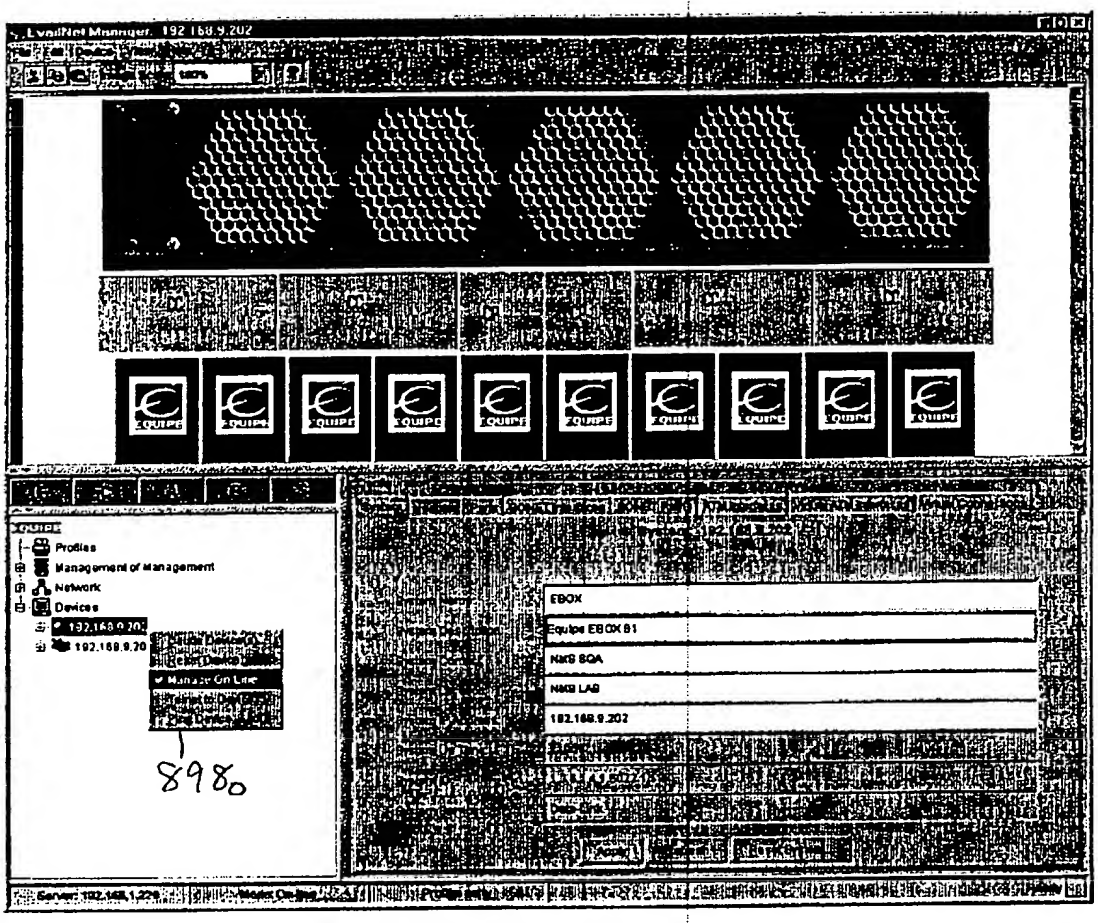


Fig. 6P

09/15/2006 15:15 [560]

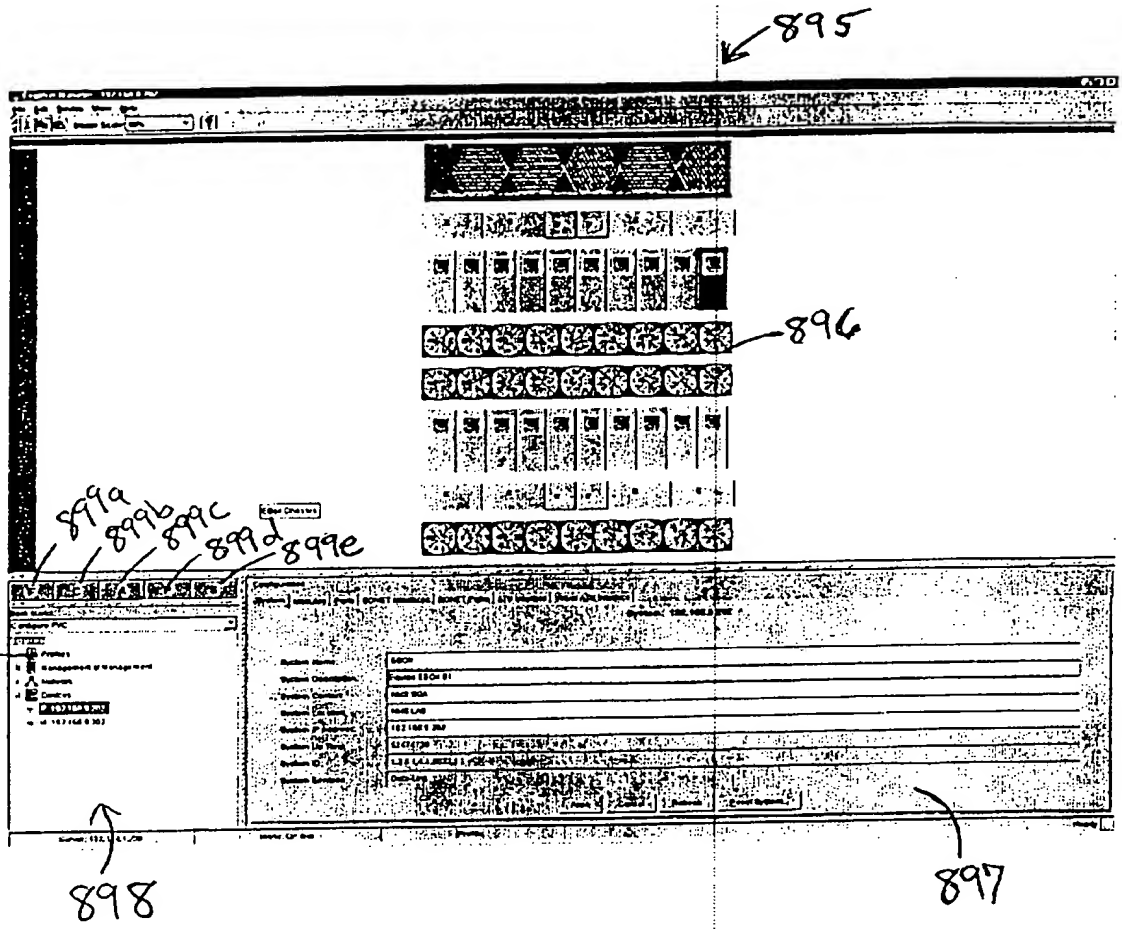


Fig. 7a

09/13/2006 15:56 [ID:] PAGE 016/023

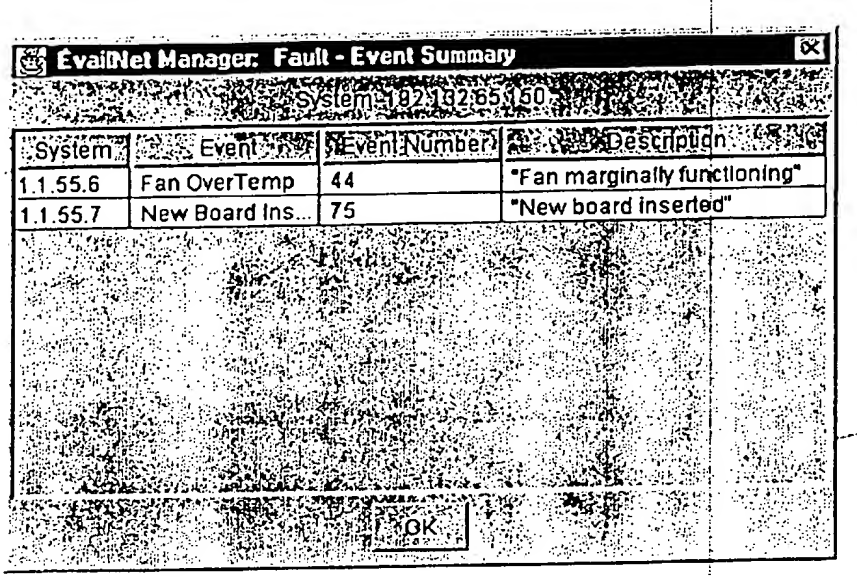


Fig. 7b

DOCKET NO. 15960

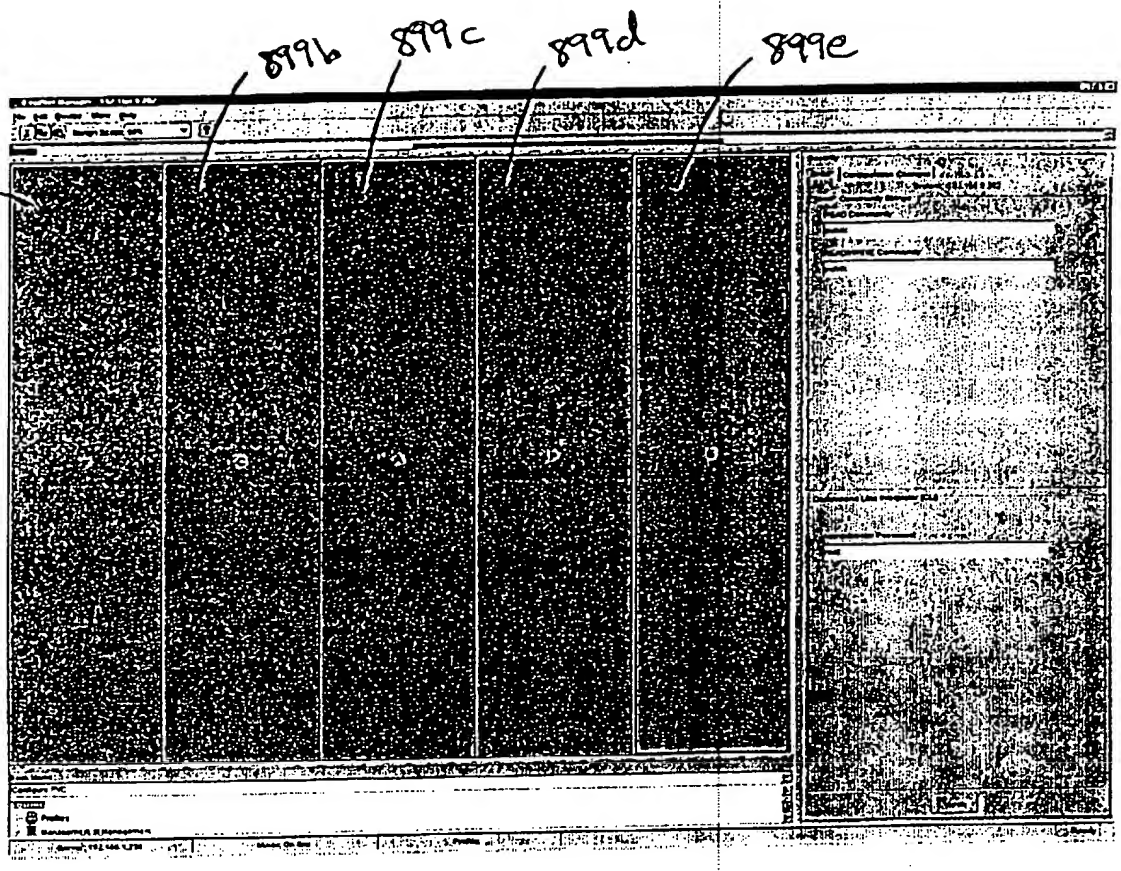


Fig.7c

DOCKET NO. 50T-0800

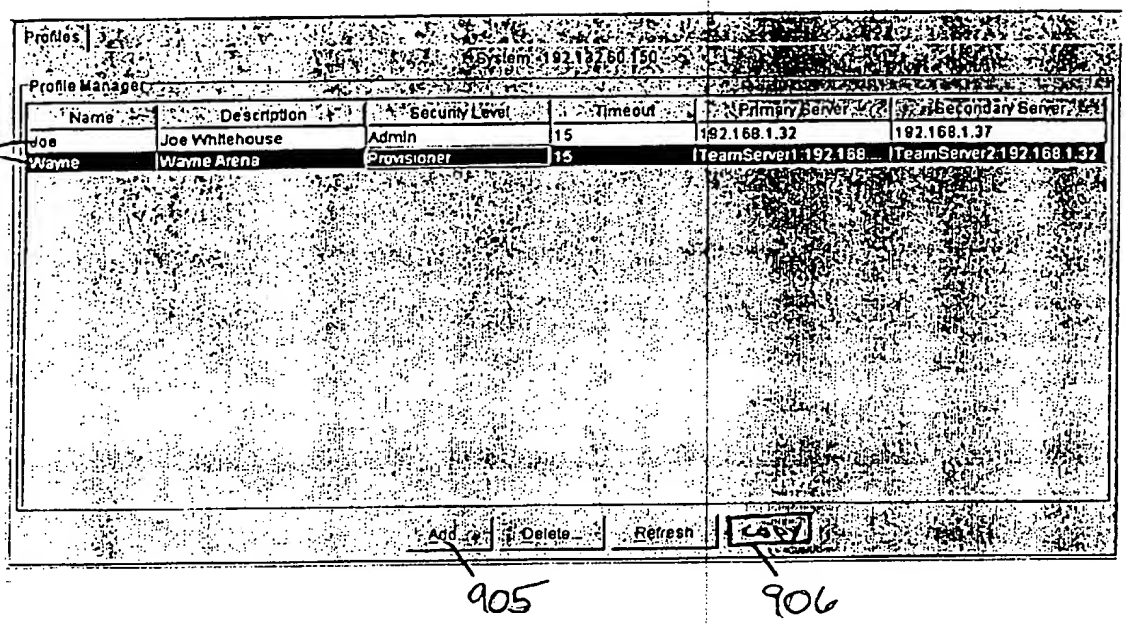


Fig. 7d

DOCKET ALARM

Fig. 7e

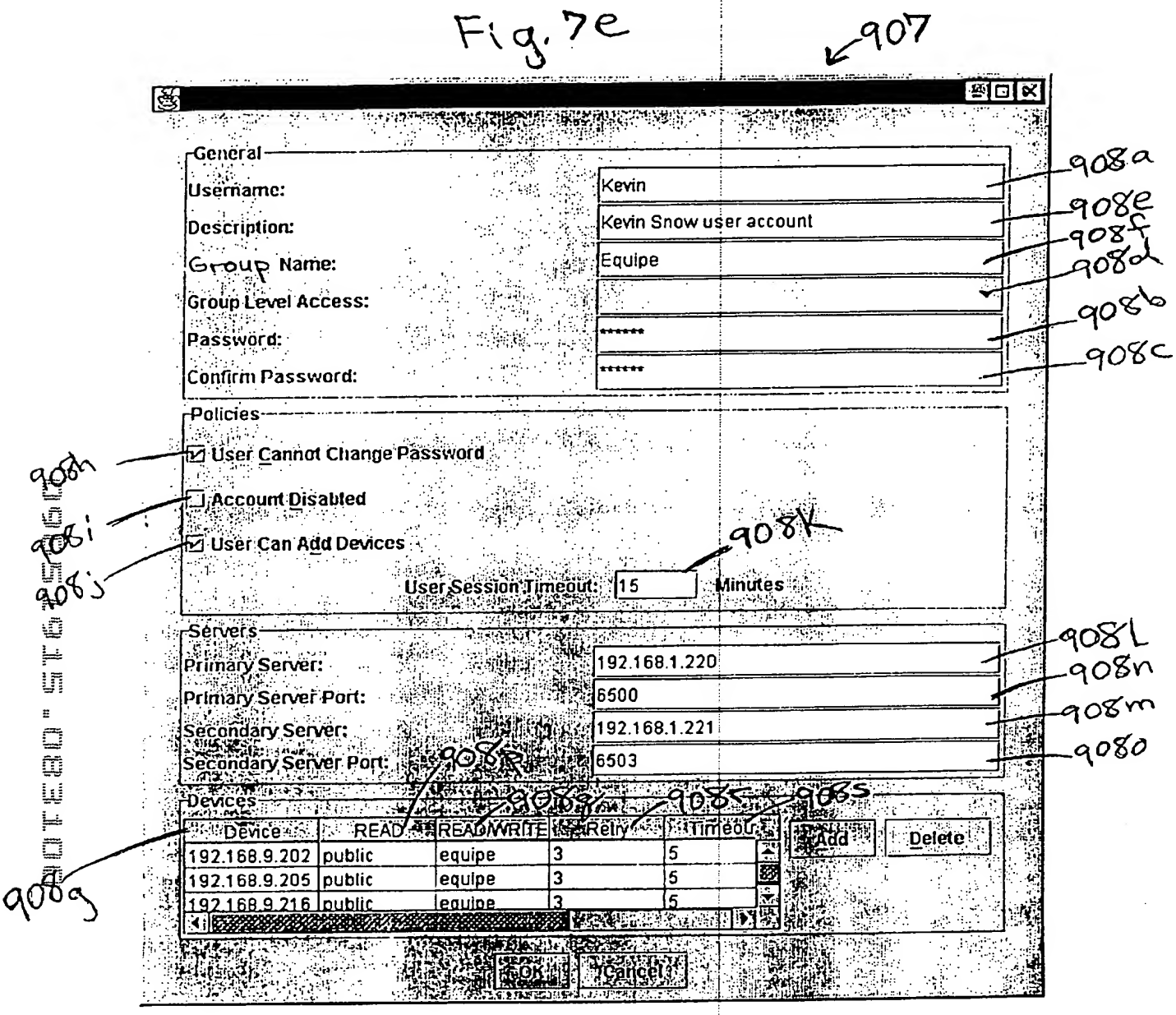
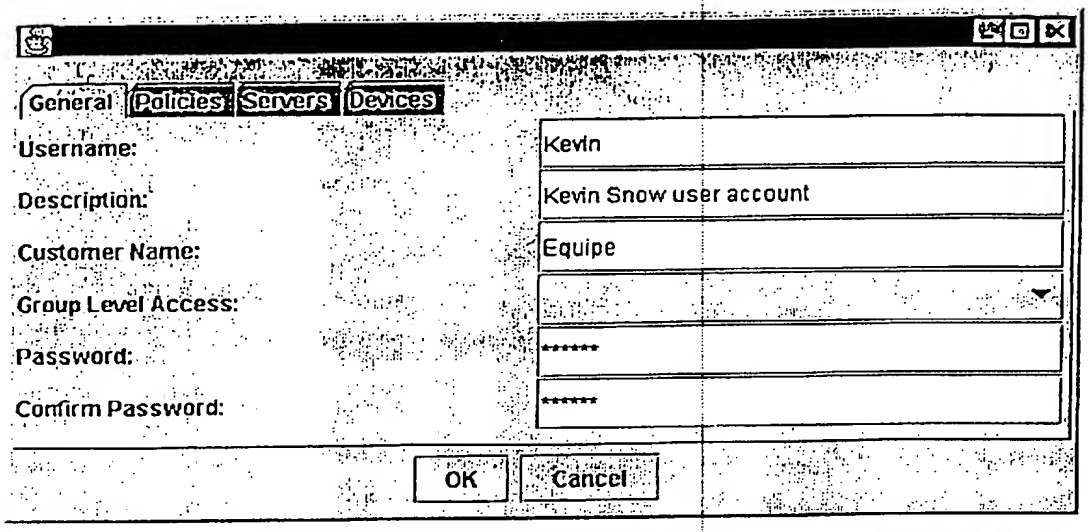

907
General
Username:
Kevin
908a
Description:
Kevin Snow user account
908e
Group Name:
Equipe
908f
Group Level Access:
908d
Password:
******
908b
Confirm Password:
******
908c
Policies
User Cannot Change Password
908h
Account Disabled
908i
User Can Add Devices
908j
User Session Timeout:
15
Minutes
908k
Servers
Primary Server:
192.168.1.220
908l
Primary Server Port:
6500
908n
Secondary Server:
192.168.1.221
908m
Secondary Server Port:
6503
908o
Devices
908g
908p
908q
908r
908s
908t
Device
READ
READ/WRITE
Retry
Timeout
192.168.9.202
public
equipe
3
5
192.168.9.205
public
equipe
3
5
192.168.9.216
public
equipe
3
5
Add
Delete
OK
Cancel

Fig. 7f



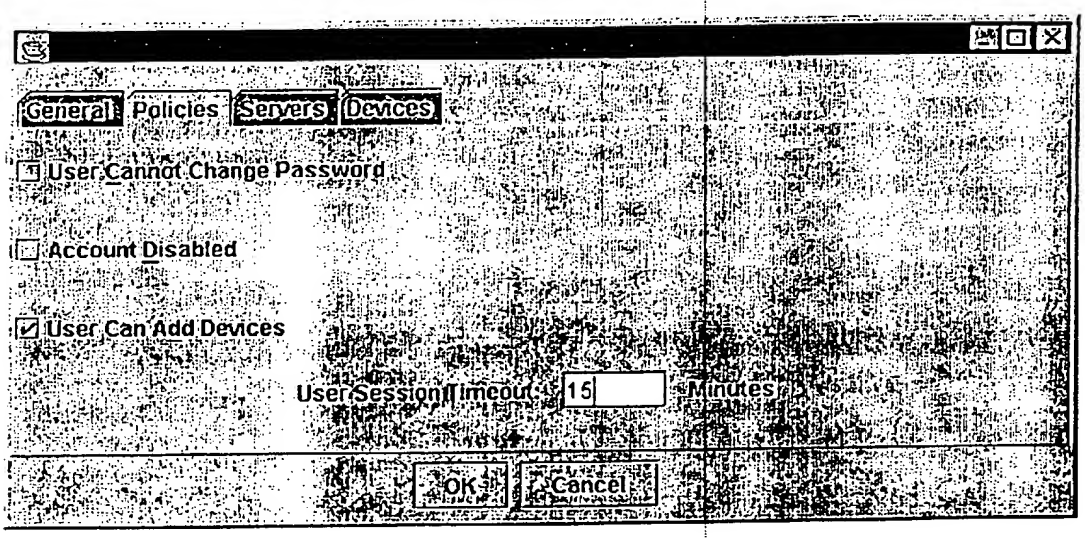
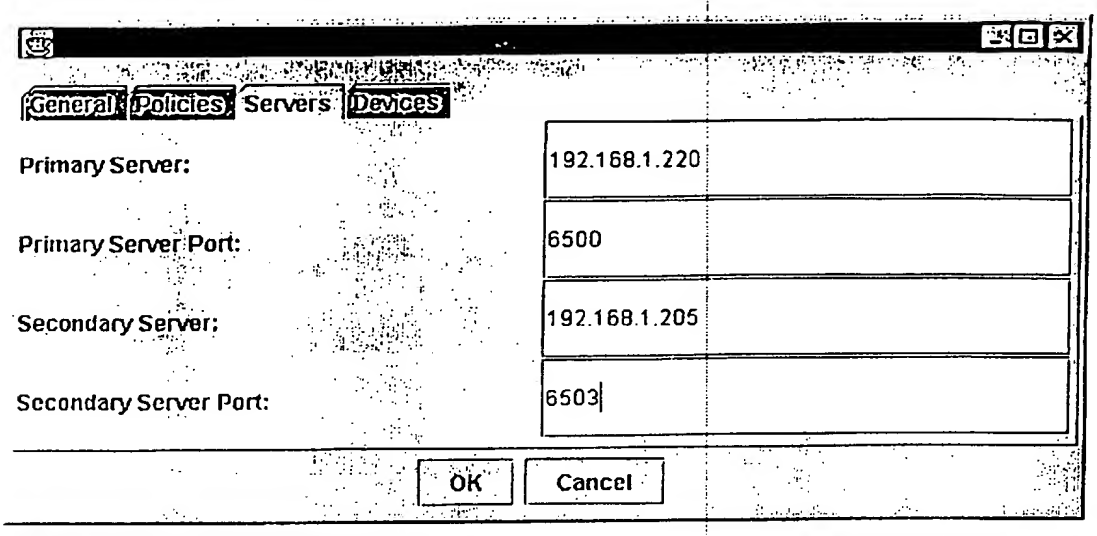


Fig. 7g

09/29/00 - 09:34:00

Fig. 7h



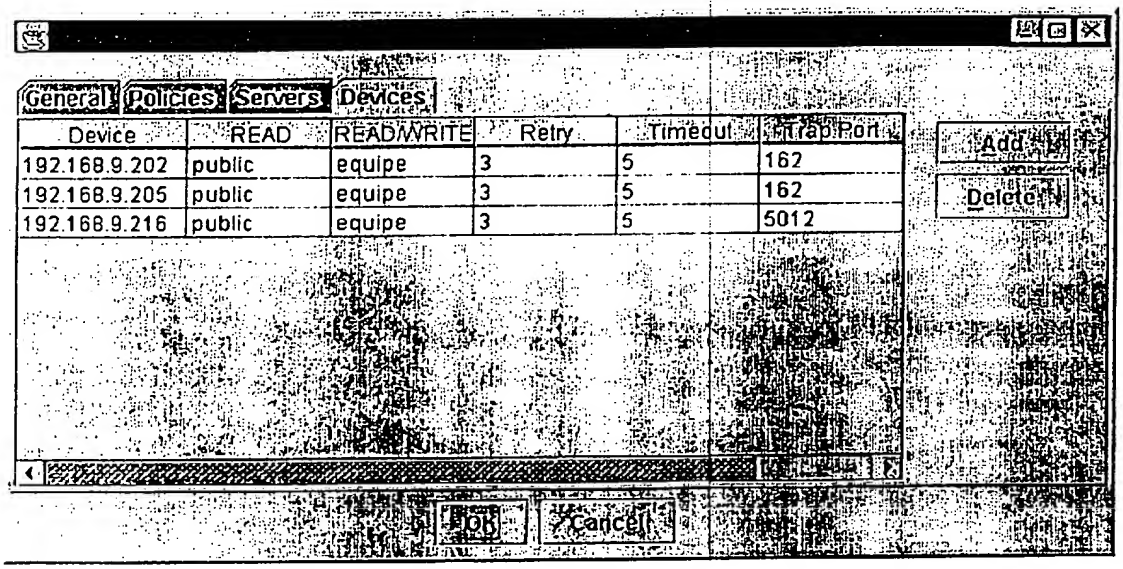


Fig. 7i

09515915 - 09530800

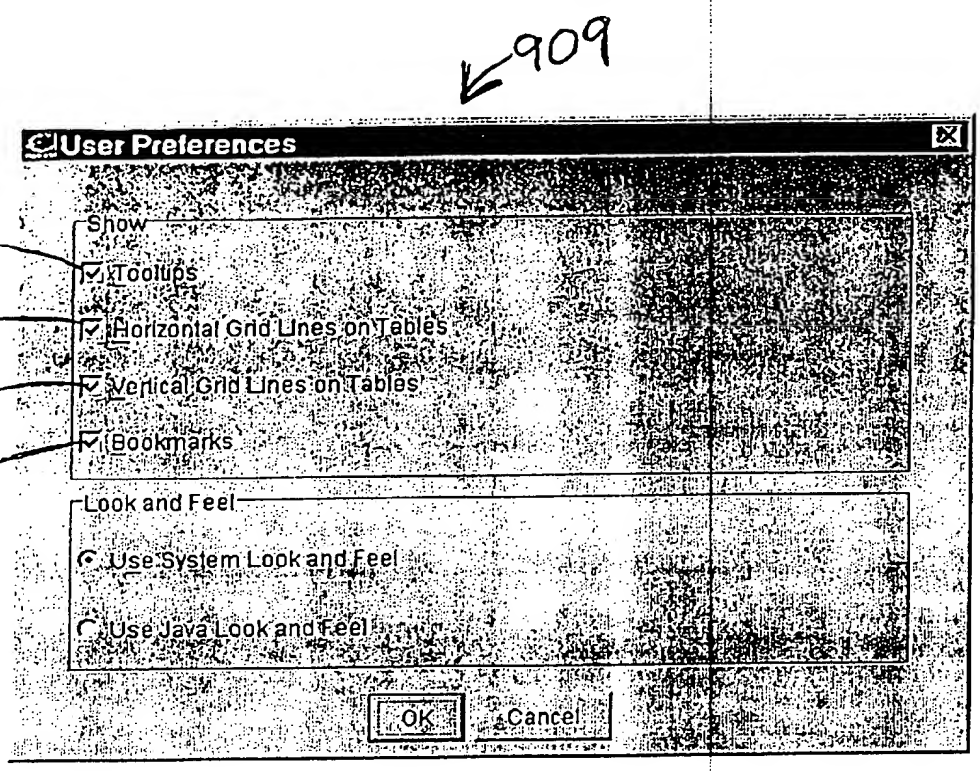
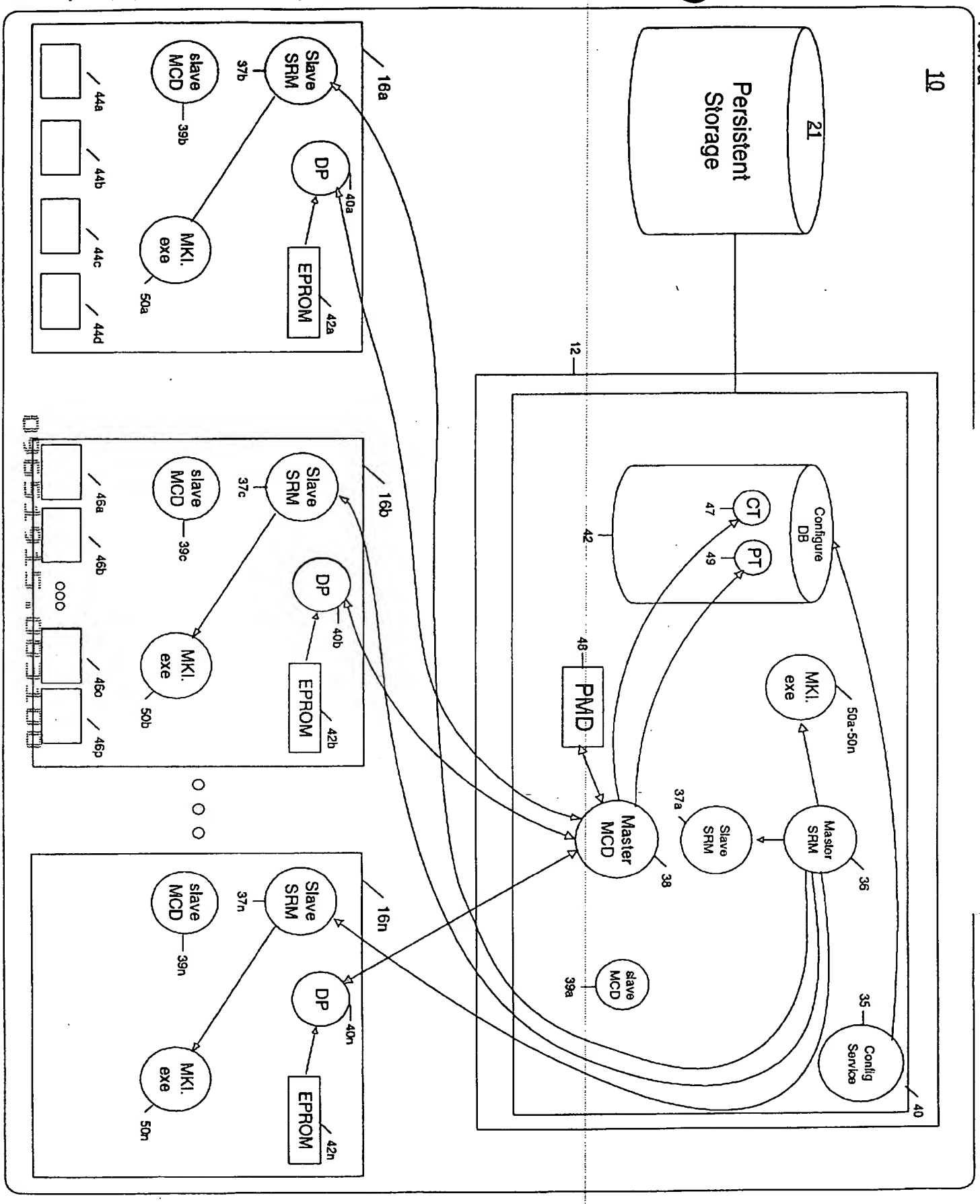


Fig. 7j

0056150 - 0880400

FIG. 8a


10
21
Persistent Storage
12
16a
16b
16n
Slave SRM
slave MCD
DP
MKI. exe
EPROM
37b
39b
40a
50a
42a
44a
44b
44c
44d
37c
39c
40b
50b
42b
46a
46b
46o
46p
37n
39n
40n
50n
42n
Configure DB
CT
PT
47
49
42
48
PMD
Master MCD
38
Master SRM
36
Slave SRM
37a
slave MCD
39a
MKI. exe
50a-50n
35
Config Service
40

Sent By: Equipe Communications; 781 795 2031; Aug-29- 2:08PM; Page 3

CARD TABLE

47

	PID	CWD TYPE	VERSION NO.	SLOT NO.	•••
16 a	500	0XF002	3	1	
16 b	501	0XF002	4	2	
	⋮	⋮	⋮	⋮	⋮
16e	505	0X6002	1	5	
	⋮	⋮	⋮	⋮	⋮
16 n	513	0XF002	1	12	
	⋮	⋮	⋮	⋮	⋮

FIG. 8b

09651915.083100

Sent By: Equipe Communications; 781 795 2031; Aug-29- 2:09PM; Page 4/7

PORT TABLE

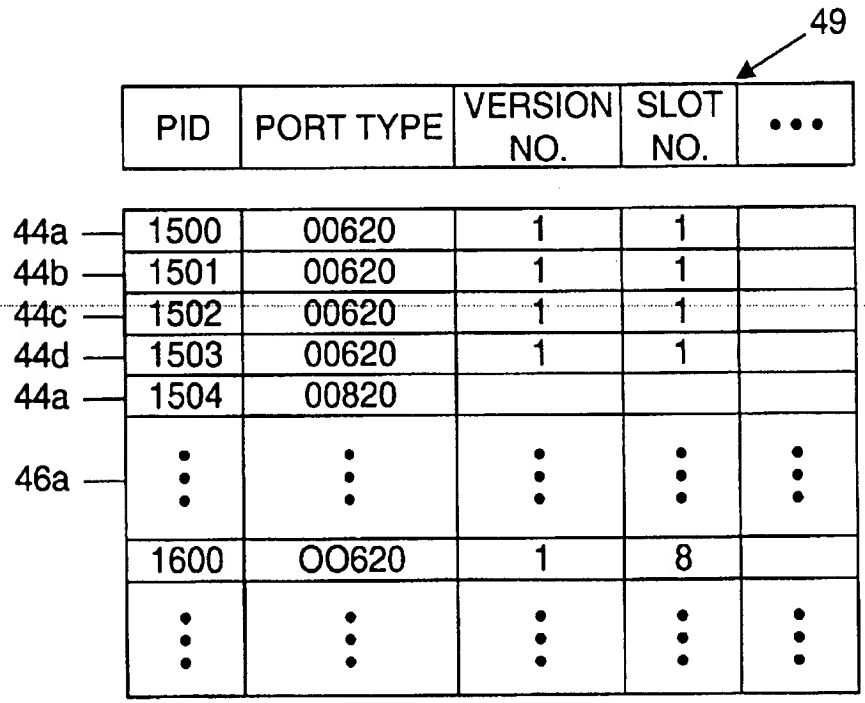
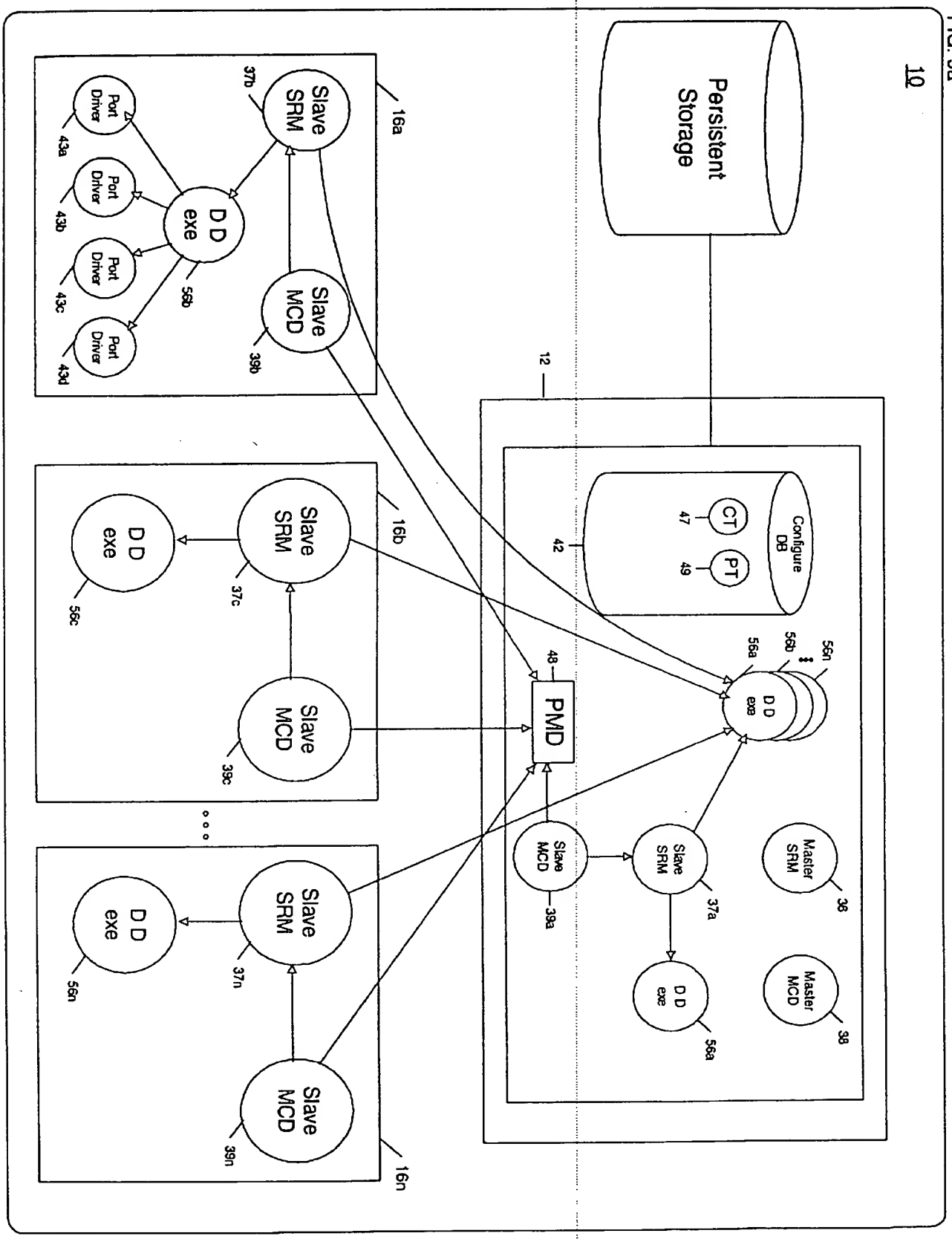


FIG. 8c

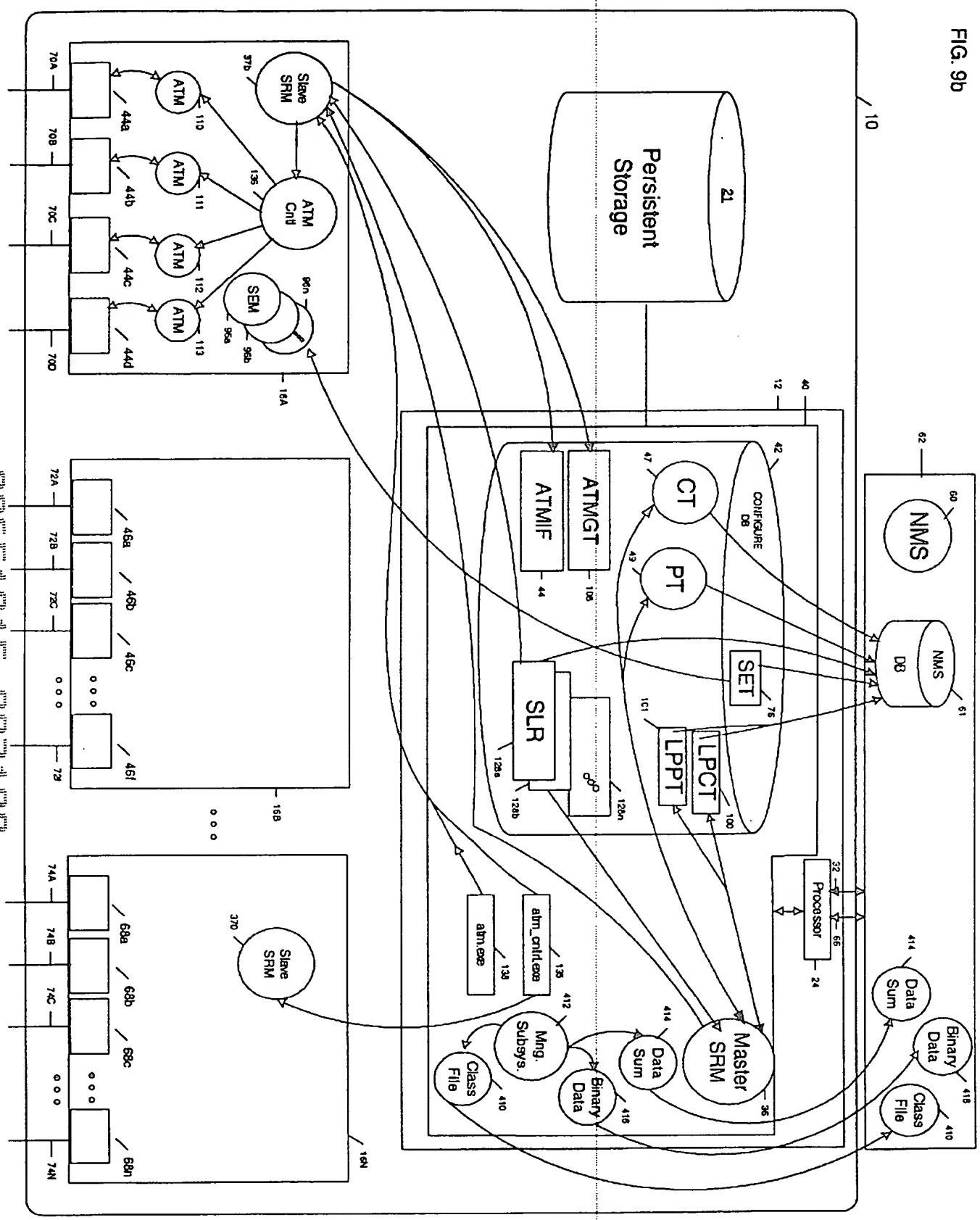
09651915 .083100

FIG. 9a



D65194.5 - 083100

FIG. 9b


10
Persistent Storage
21
NMS
60
NMS DB
61
62
Processor
24
32
66
Data Sum
414
Binary Data
418
Class File
410
Master SRM
36
Data Sum
414
Binary Data
416
Mng. Subsys.
412
Class File
410
atm_cntl.exe
135
atm.exe
139
Slave SRM
370
ATMIF
44
ATMGT
105
CT
47
PT
43
CONFIGURE DB
42
SET
75
SLR
128a
128b
128n
LPPT
101
LPCT
100
12
40
Slave SRM
97b
ATM Cntl
135
ATM
110
ATM
111
ATM
112
ATM
113
SEM
96a
96b
96n
16A
70A
70B
70C
70D
44a
44b
44c
44d
46a
46b
46c
46f
72A
72B
72C
72I
16B
68a
68b
68c
68n
74A
74B
74C
74N
16N

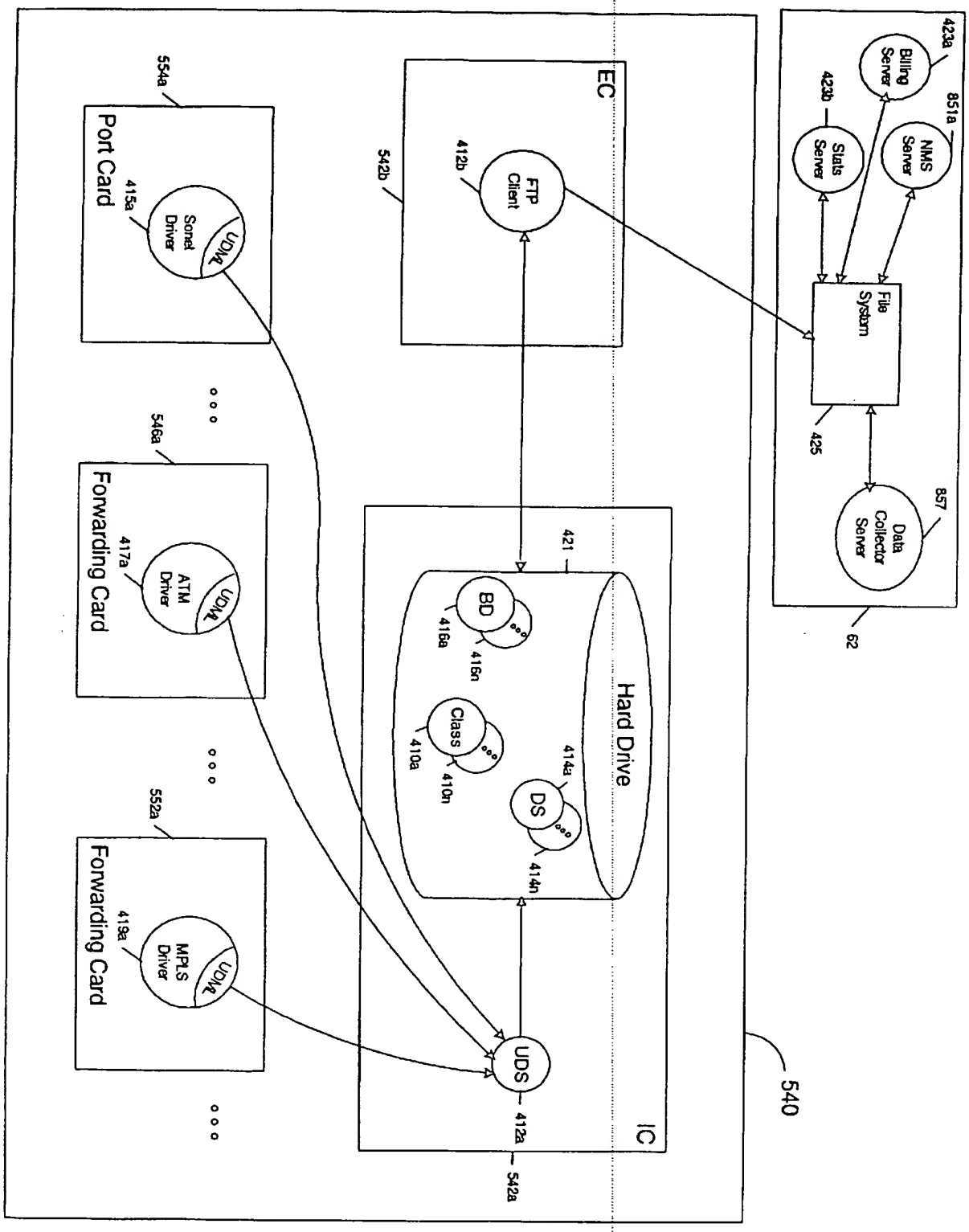


Fig. 9c

09534540

FIG. 10

Service Endpoint Table 76

	Service Endpoint #	Port PID
78	1	1500
80	2	1501
82	3	1501
84	4	1501
86	5	1502
88	6	1502
90	7	1503
92	8	1503
94	9	1503
168	10	1502
	⋮	⋮

FIG. 11a

Logical to Physical Card Table 100

	LID (98)	Primary PID (102)	Back-up PID (104)
106	30	500	513
109	31	501	513
	⋮	⋮	⋮

FIG. 11b

Logical to Physical Port Table 101

	LID (98)	Primary PID (102)	Back-up PID (104)
107	40	1500	1600
	⋮	⋮	⋮

0960745.0834400

FIG. 12

ATM Group Table 108

Group #	Card LID	...
1	30	
2	30	
3	30	
4	30	

FIG. 13

ATM Interface Table 114

ATM IF	ATM Group	SE	...
1	1	1	
2	1	1	
3	1	1	
4	2	2	
5	2	3	
6	2	4	
⋮	⋮	⋮	⋮
12	3	10	
⋮	⋮	⋮	⋮

170

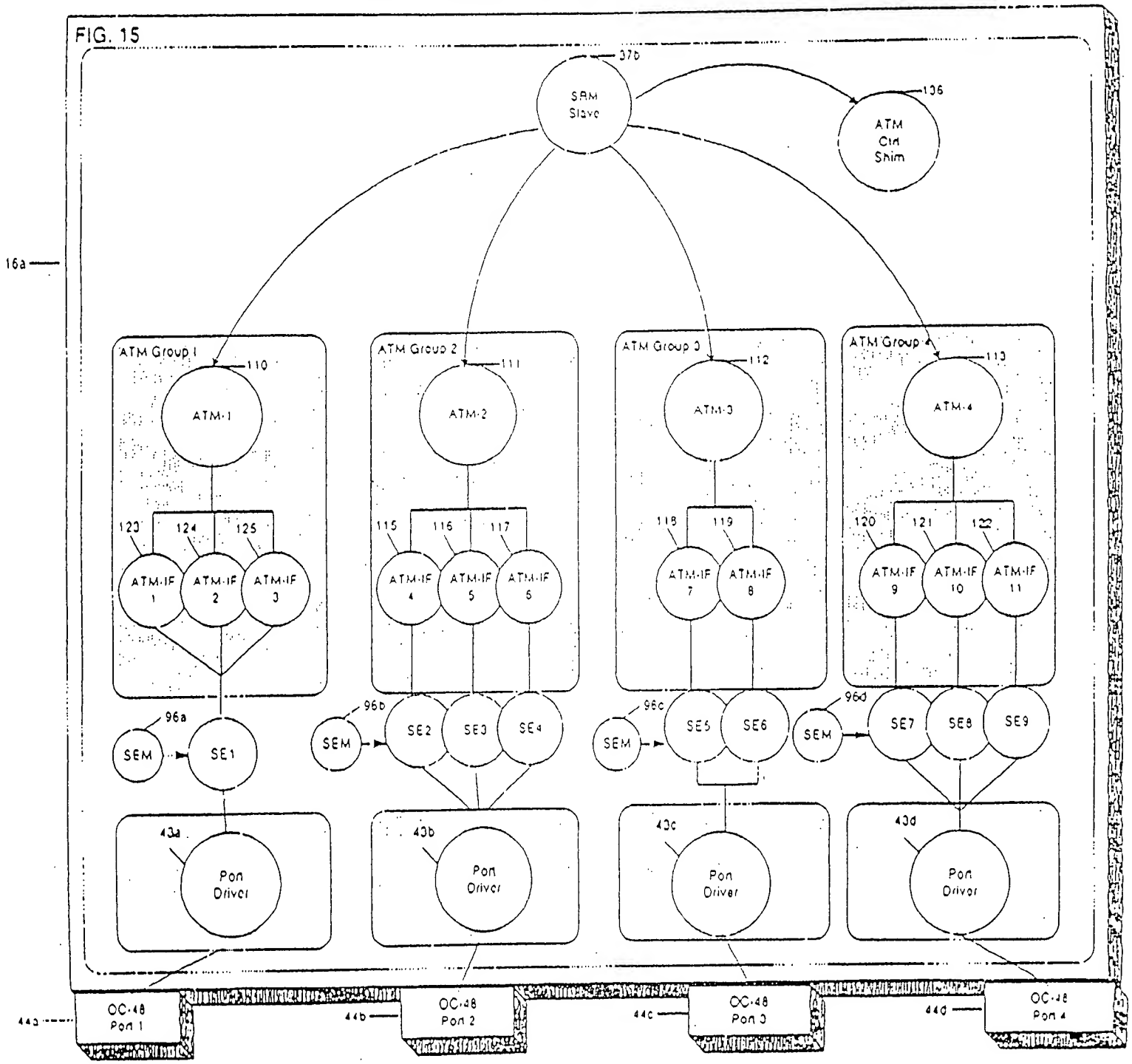
FIG. 14

Software Load Record 128a

130	Control Shim	LID	132
134	atm-cntl.exe	30	

0605-0835-0800

FIG. 15


16a
37b
SAM Slave
136
ATM Ctrl Shim
ATM Group 1
110
ATM-1
123
124
125
ATM-IF 1
ATM-IF 2
ATM-IF 3
ATM Group 2
111
ATM-2
115
116
117
ATM-IF 4
ATM-IF 5
ATM-IF 6
ATM Group 3
112
ATM-3
118
119
ATM-IF 7
ATM-IF 8
ATM Group 4
113
ATM-4
120
121
122
ATM-IF 9
ATM-IF 10
ATM-IF 11
96a
SEM
SE1
96b
SEM
SE2
SE3
SE4
96c
SEM
SE5
SE6
96d
SEM
SE7
SE8
SE9
43a
Pon Driver
43b
Pon Driver
43c
Pon Driver
43d
Pon Driver
44a
OC-48 Pon 1
44b
OC-48 Pon 2
44c
OC-48 Pon 3
44d
OC-48 Pon 4

00TE80" ST6TS960

FIG. 16a

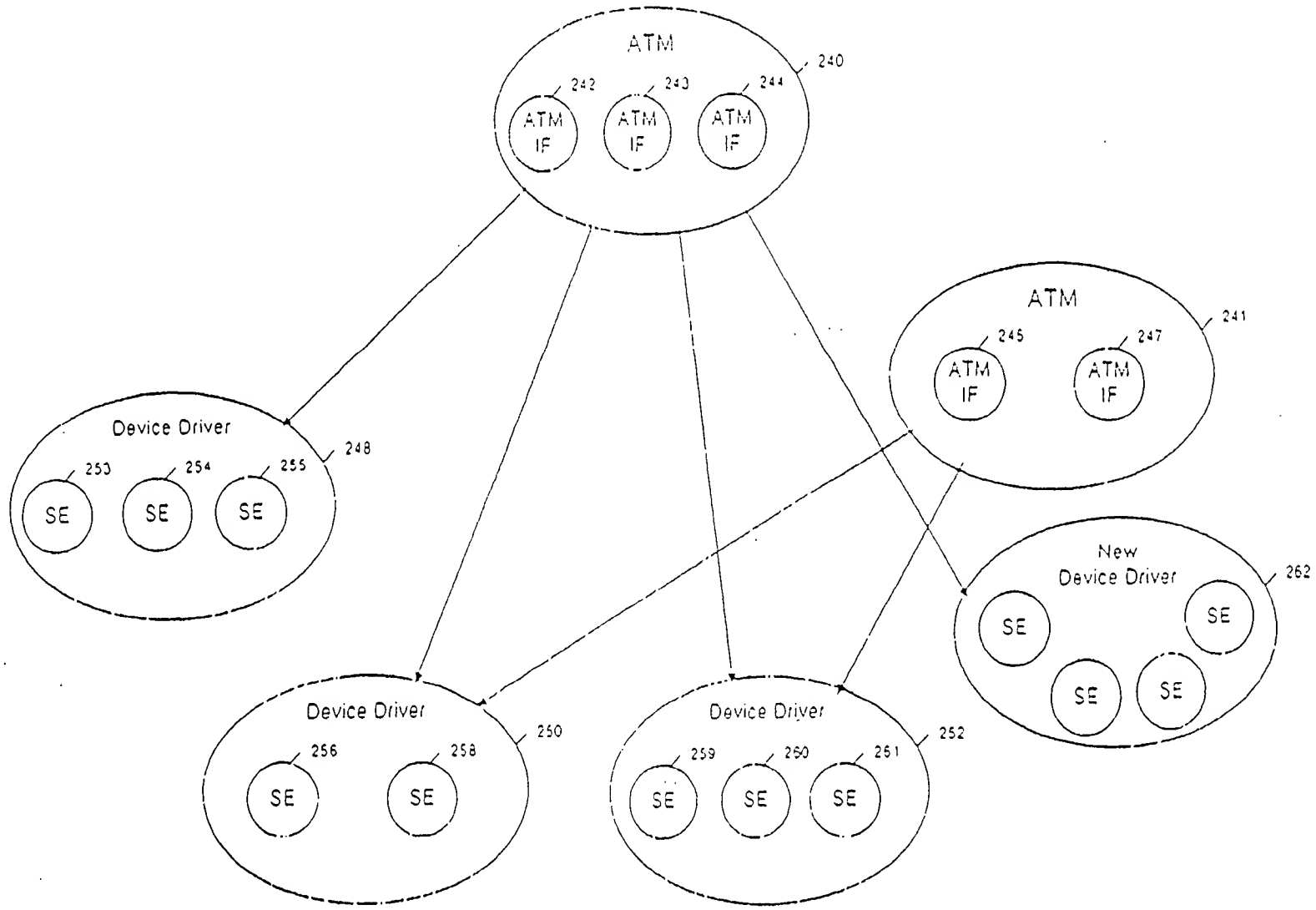
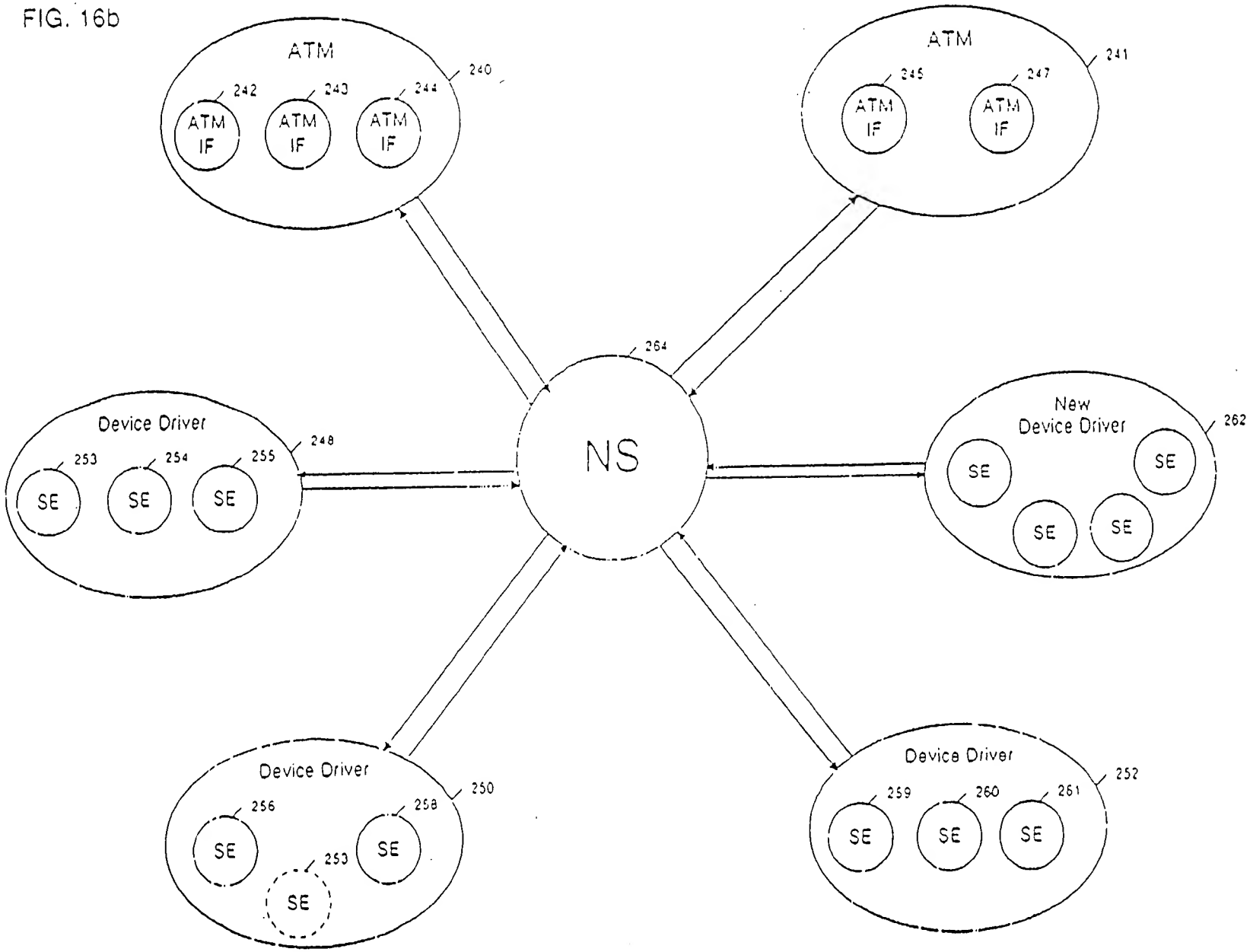


FIG. 16b


ATM
240
242
243
244
ATM IF
ATM IF
ATM IF
ATM
241
245
247
ATM IF
ATM IF
264
NS
Device Driver
248
253
254
255
SE
SE
SE
New Device Driver
262
SE
SE
SE
SE
Device Driver
250
256
258
253
SE
SE
SE
Device Driver
252
259
260
261
SE
SE
SE

0070807 5767960

FIG. 16c

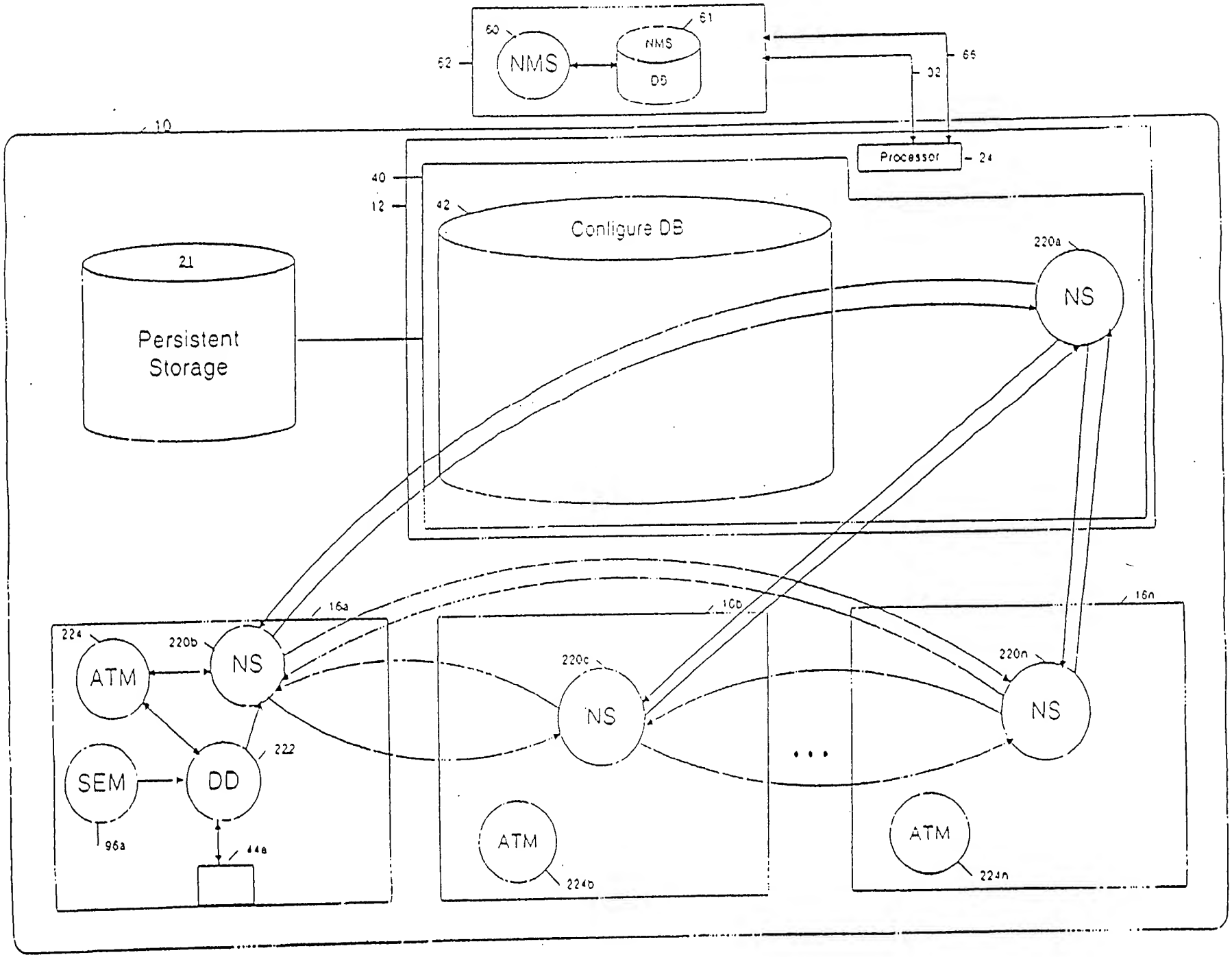
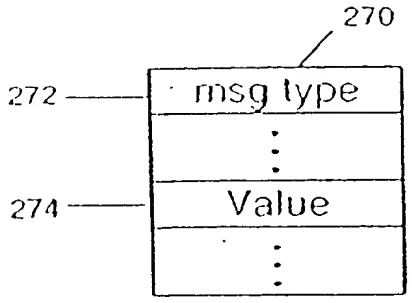


FIG. 16d



DOCKET ALARM

FIG. 17

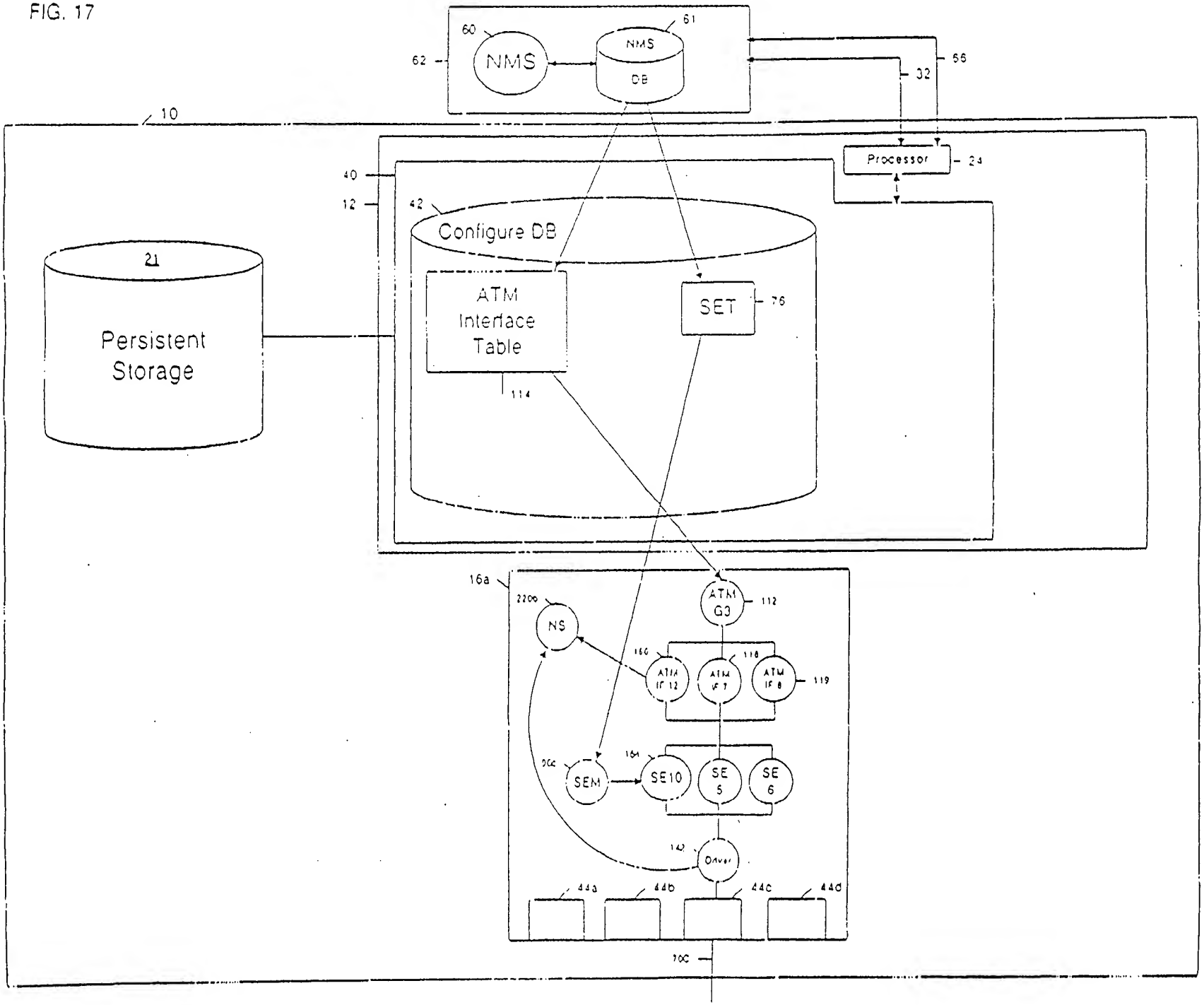
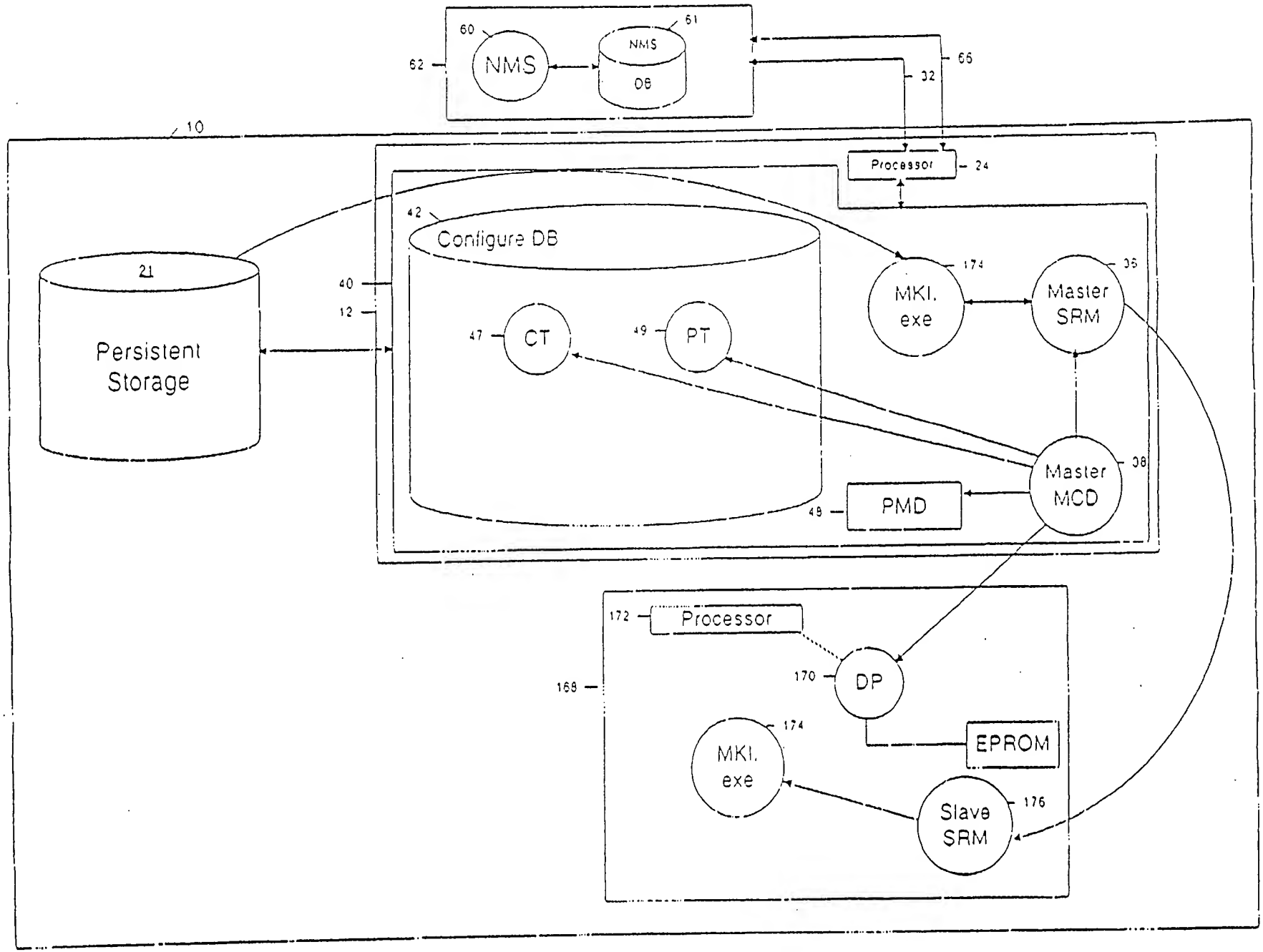

60
NMS
61
NMS
DB
62
56
32
10
Processor
24
40
12
42
Configure DB
21
Persistent Storage
ATM Interface Table
SET
76
114
16a
220c
NS
ATM G3
112
160
118
119
SEM
SE10
SE 5
SE 6
44a
44b
44c
44d
70c

FIG. 18


60
NMS
61
NMS
DB
62
65
32
10
Processor
24
42
Configure DB
21
Persistent Storage
40
12
47
CT
49
PT
MKI. exe
174
Master SRM
36
Master MCD
38
49
PMD
172
Processor
168
170
DP
EPROM
MKI. exe
174
Slave SRM
176

0070807 5767960

FIG. 19

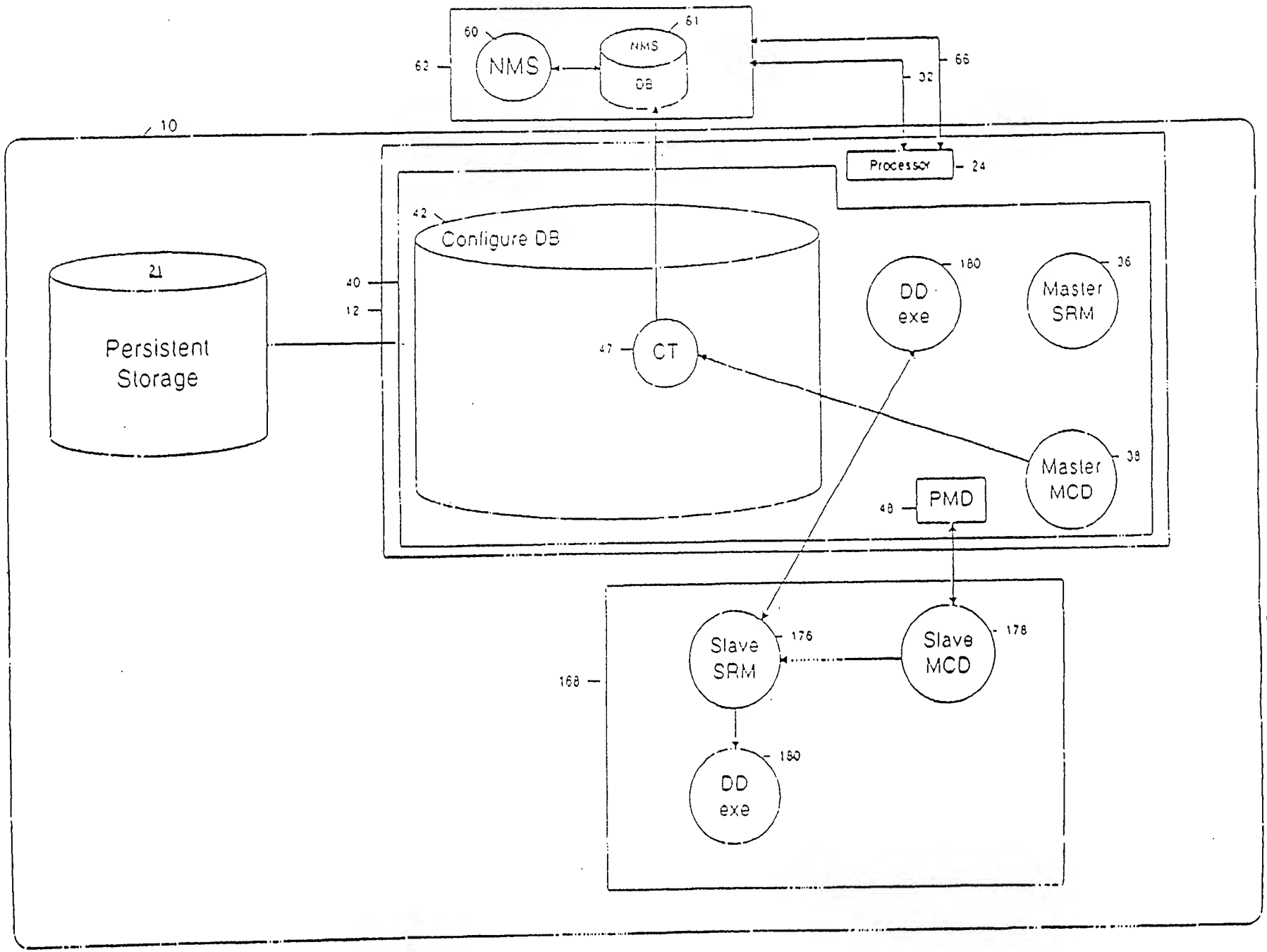


FIG. 20

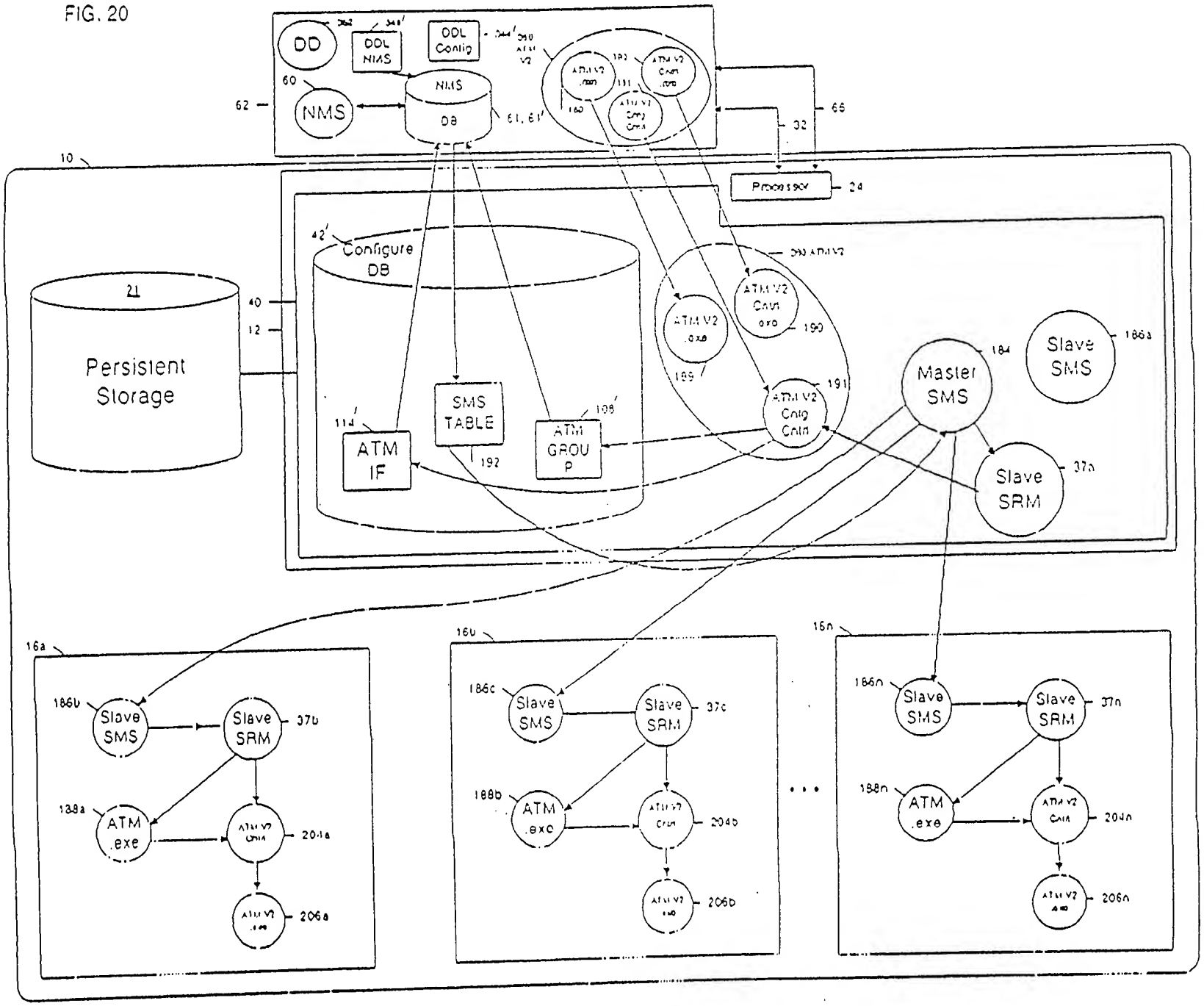

DD
DDL NMS
DDL Config
NMS
NMS DB
60
62
61, 61'
65
32
10
Processor
24
Configure DB
42'
21
Persistent Storage
40
12
ATM V2 .exe
ATM V2 Conn .exe
190
199
ATM V2 Config Conn
191
Master SMS
184
Slave SMS
186a
Slave SRM
37a
SMS TABLE
192
ATM GROUP
108'
ATM IF
114'
16a
186b
Slave SMS
Slave SRM
37b
188a
ATM .exe
ATM V2 Conn
204a
ATM V2 .exe
206a
16b
186c
Slave SMS
Slave SRM
37c
188b
ATM .exe
ATM V2 Conn
204b
ATM V2 .exe
206b
16n
186n
Slave SMS
Slave SRM
37n
188n
ATM .exe
ATM V2 Conn
204n
ATM V2 .exe
206n

FIG. 21

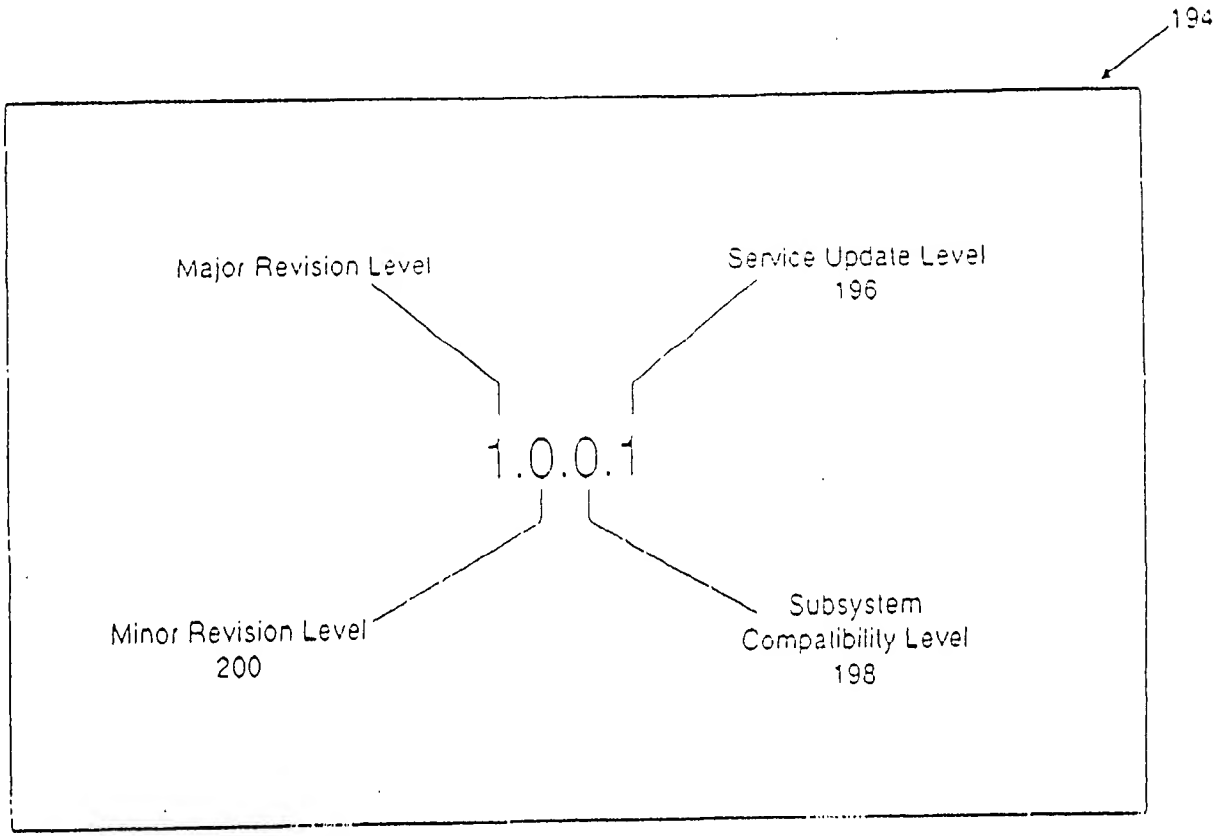
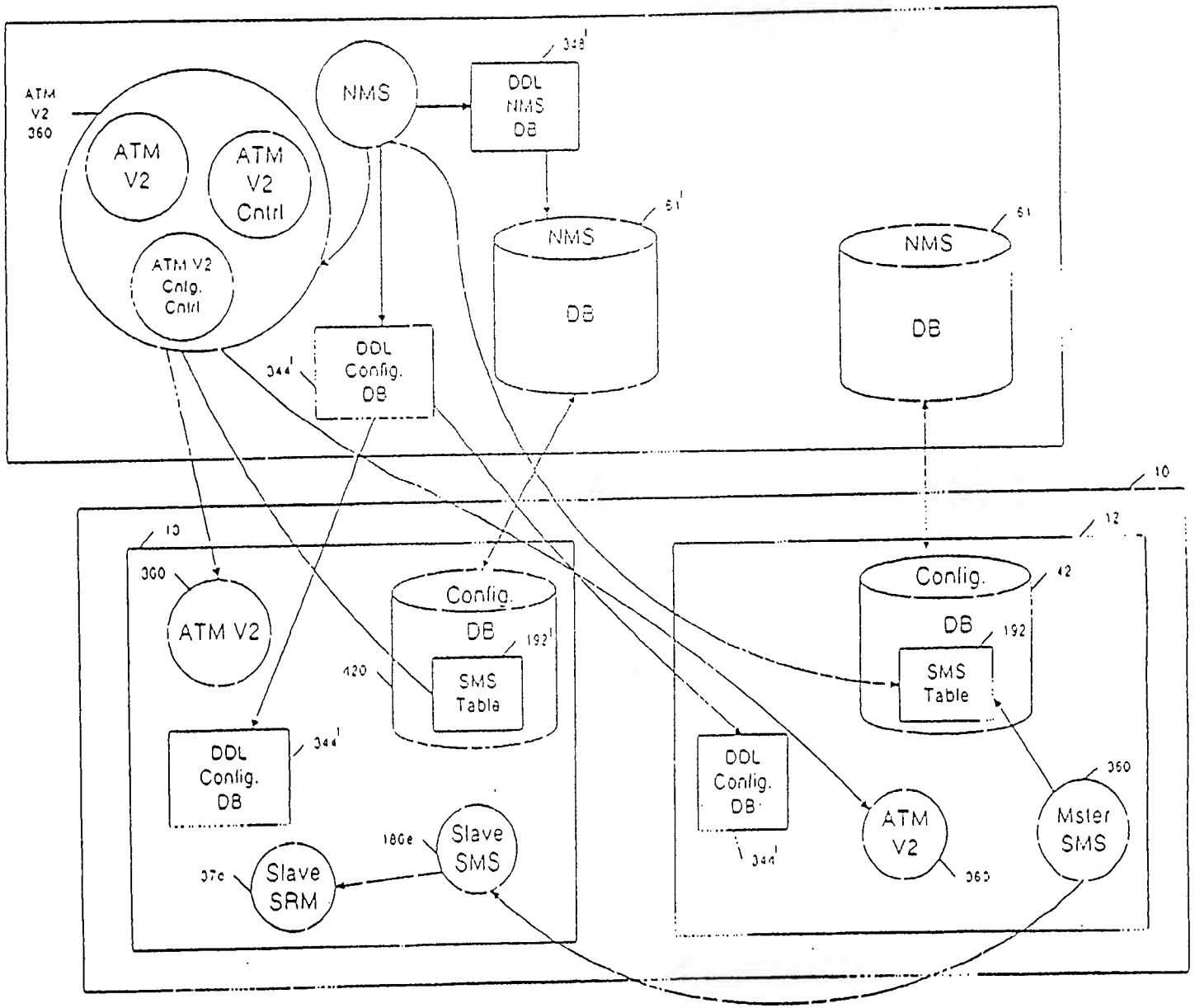

194
Major Revision Level
Service Update Level
196
1.0.0.1
Minor Revision Level
200
Subsystem
Compatibility Level
198

FIG. 22


ATM V2 360
ATM V2
ATM V2 Cntrl
ATM V2 Cnfg. Cntrl
NMS
DDL NMS DB
NMS DB
NMS DB
DDL Config. DB
344'
10
13
360
ATM V2
Config. DB
192'
420
SMS Table
DDL Config. DB
344'
180e
Slave SMS
370
Slave SRM
12
Config. DB
42
192
SMS Table
DDL Config. DB
344'
ATM V2
360
360
Mster SMS

00TE80" ST6TS960

FIG. 23

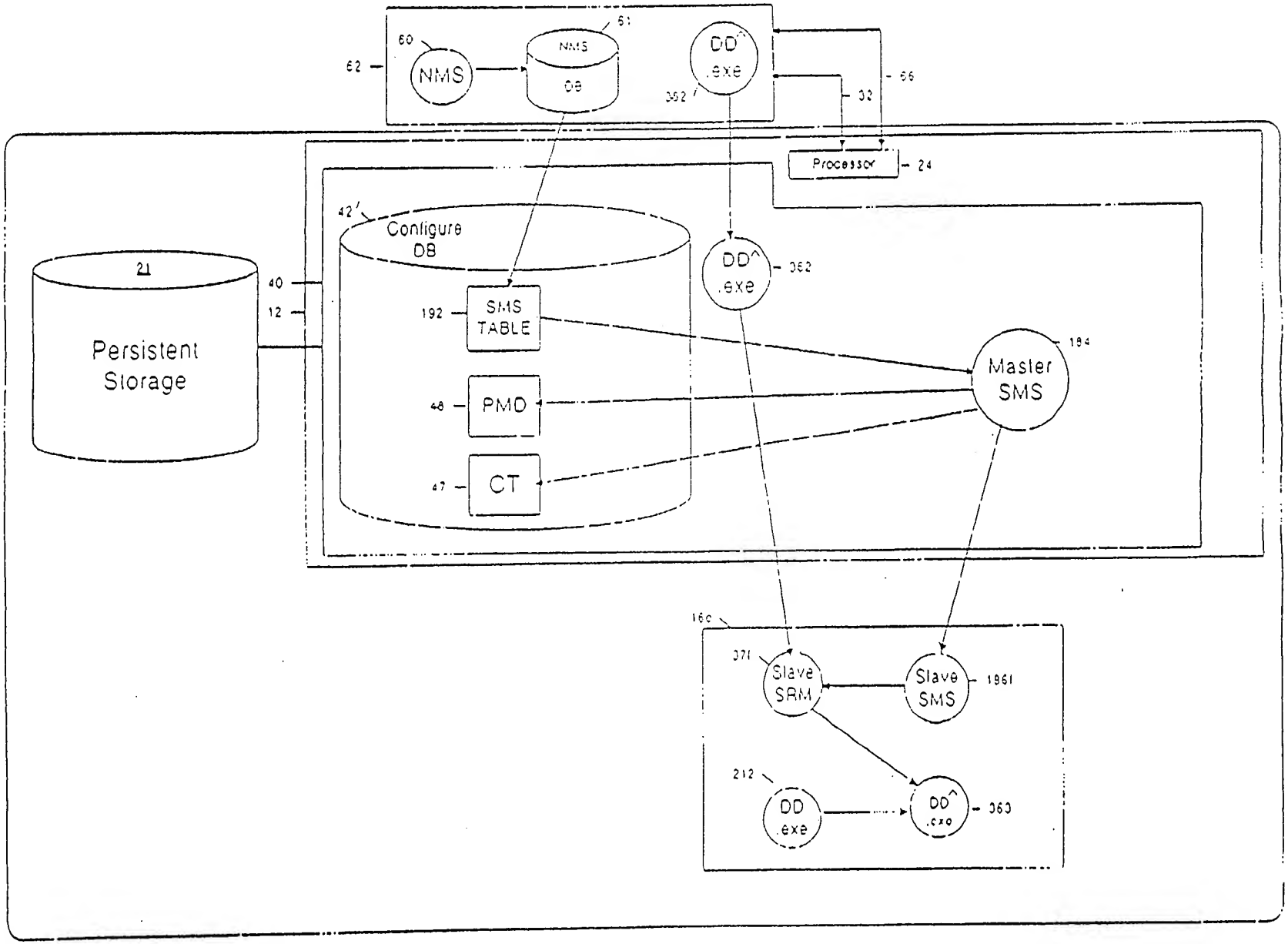


FIG. 24

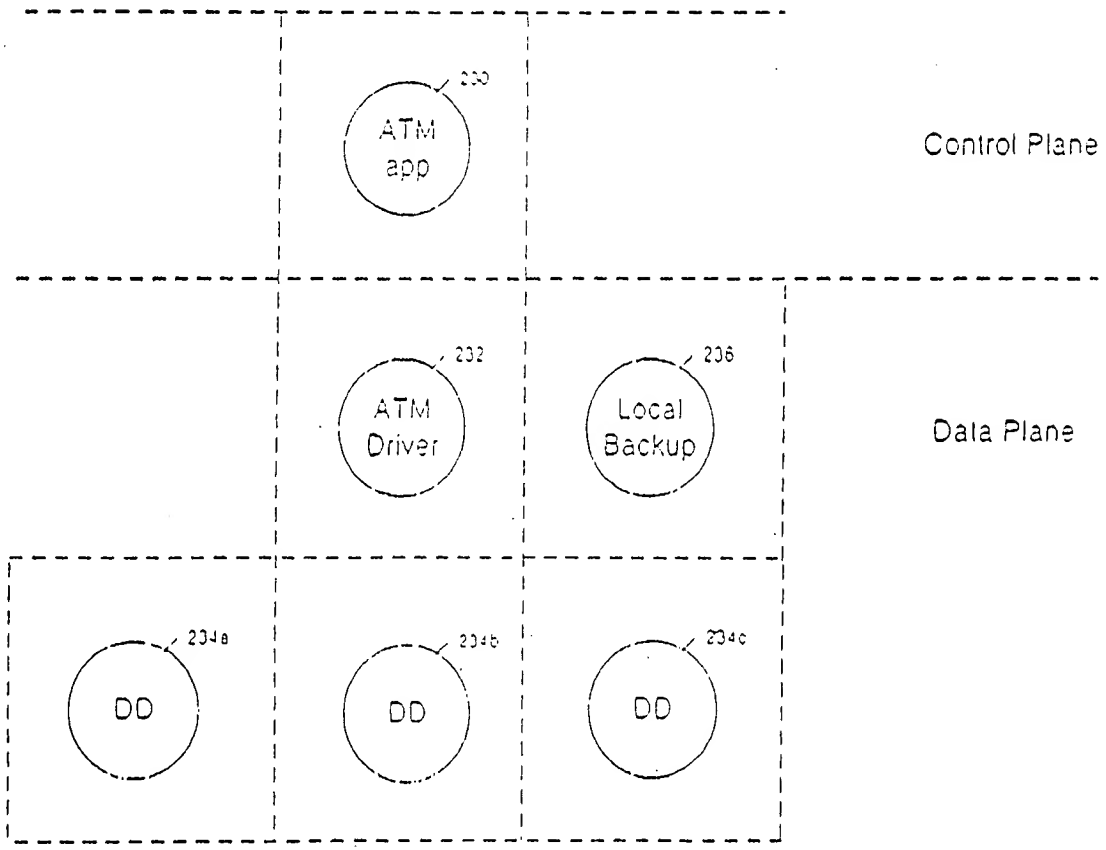
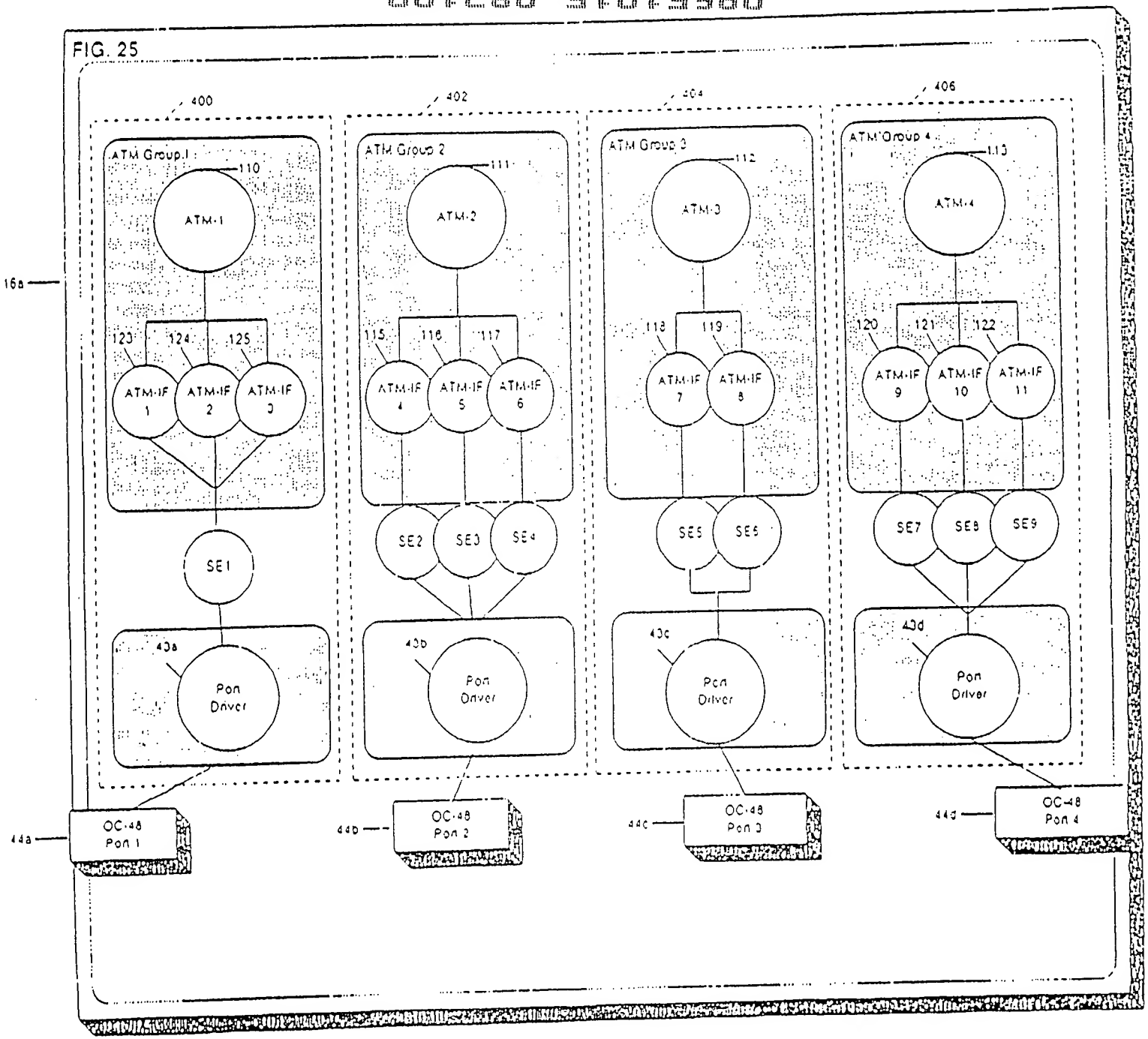
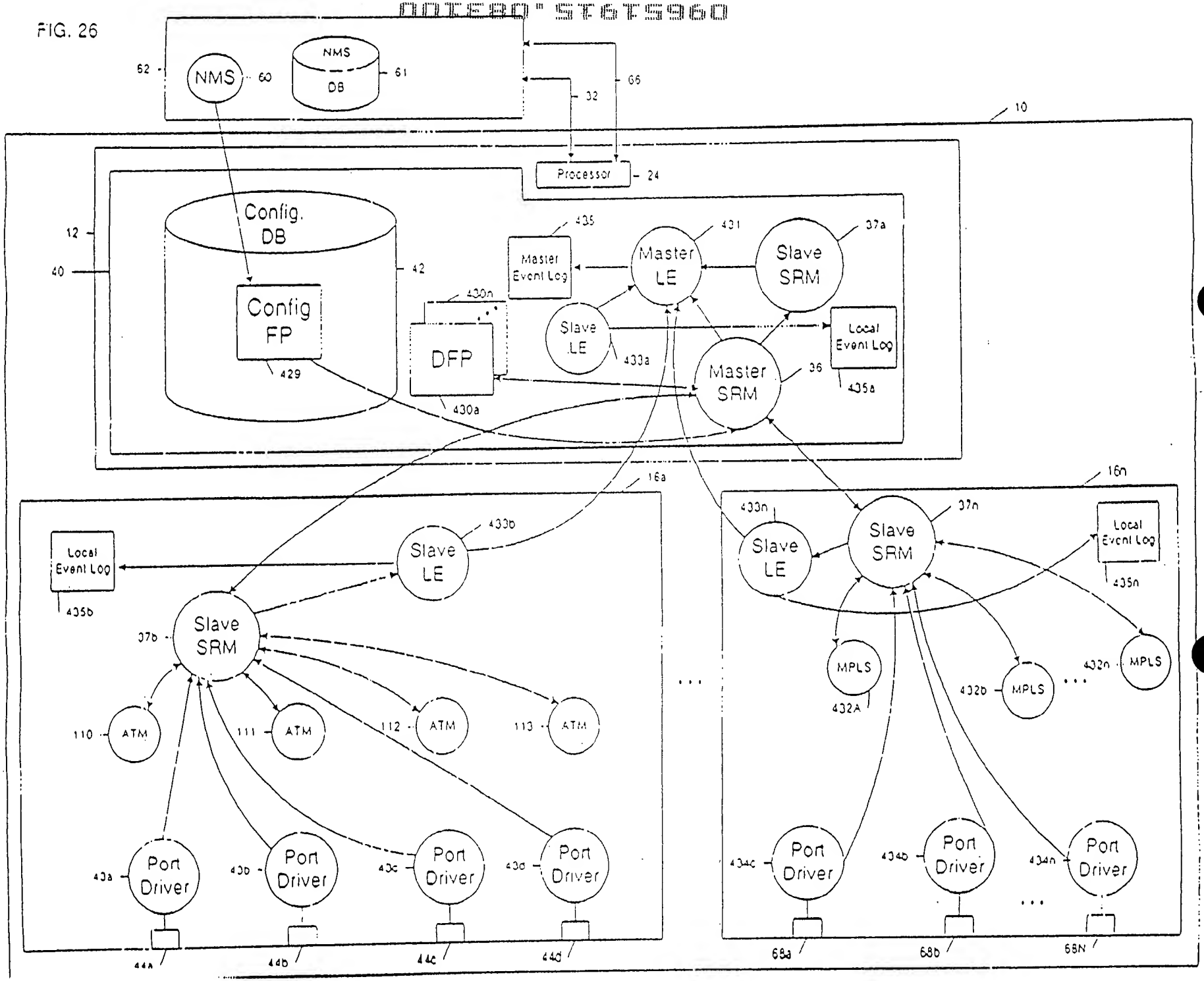

230
ATM app
Control Plane
232
ATM Driver
236
Local Backup
Data Plane
234a
DD
234b
DD
234c
DD

FIG. 25


400
402
404
406
ATM Group 1
ATM Group 2
ATM Group 3
ATM Group 4
110
111
112
113
ATM-1
ATM-2
ATM-3
ATM-4
123
124
125
115
116
117
118
119
120
121
122
ATM-IF 1
ATM-IF 2
ATM-IF 3
ATM-IF 4
ATM-IF 5
ATM-IF 6
ATM-IF 7
ATM-IF 8
ATM-IF 9
ATM-IF 10
ATM-IF 11
SE1
SE2
SE3
SE4
SE5
SE6
SE7
SE8
SE9
16a
43a
43b
43c
43d
Pon Driver
Pon Driver
Pon Driver
Pon Driver
44a
OC-48 Pon 1
44b
OC-48 Pon 2
44c
OC-48 Pon 3
44d
OC-48 Pon 4

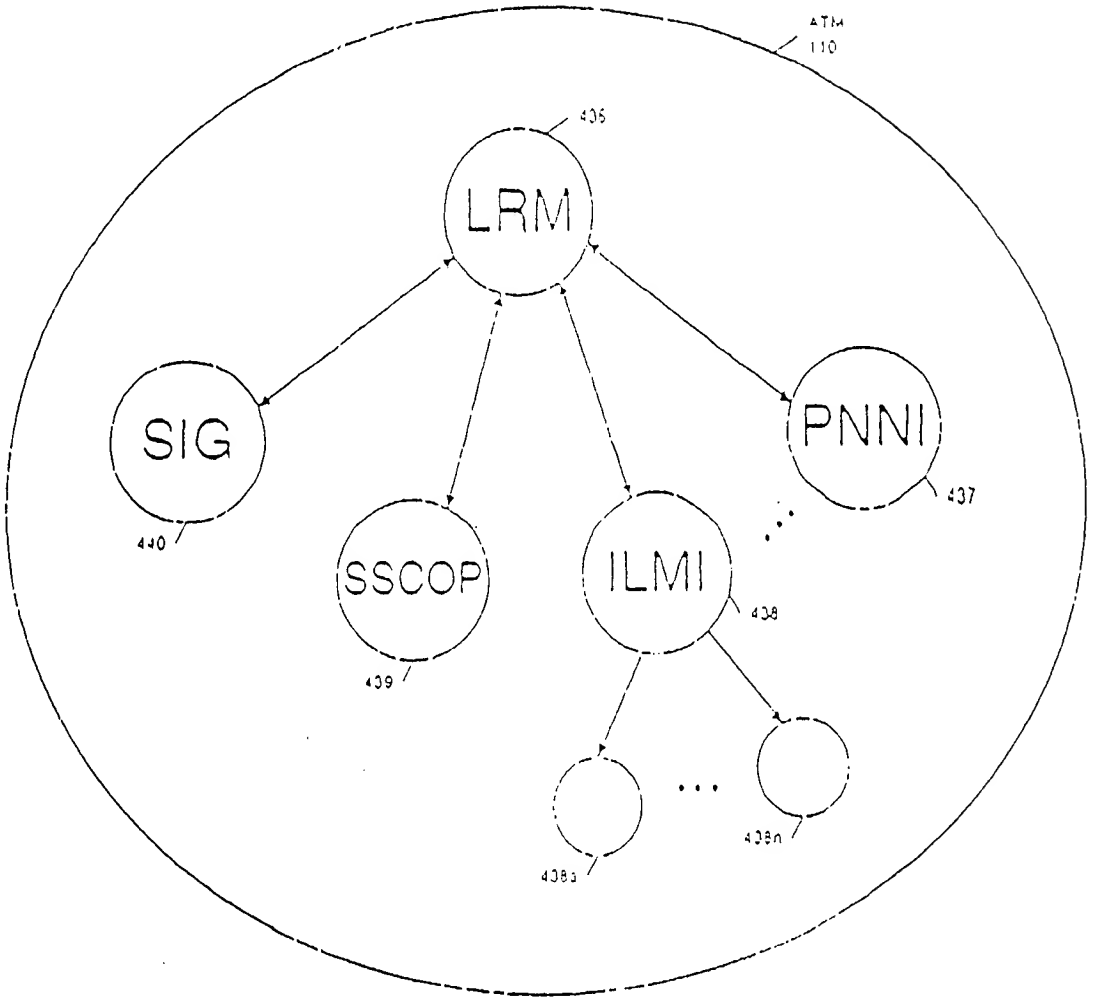
US 6,675,960

FIG. 26



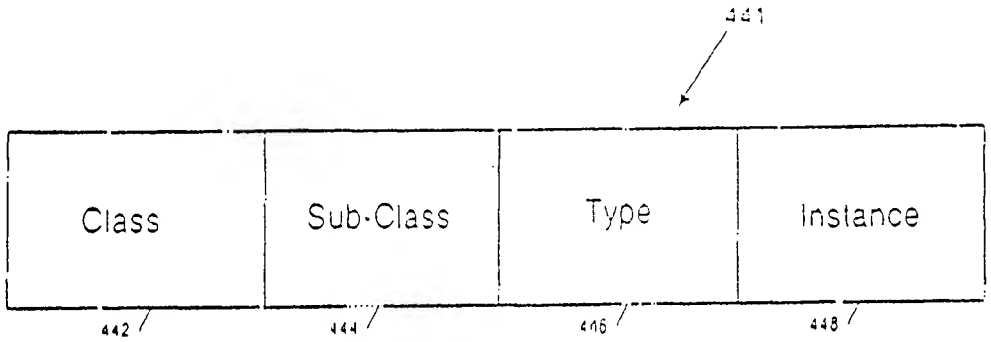
00TE80"ST6TS960

FIG. 27



00E80 "5T6T9960

FIG. 28



00E80 ST6T960

FIG. 29

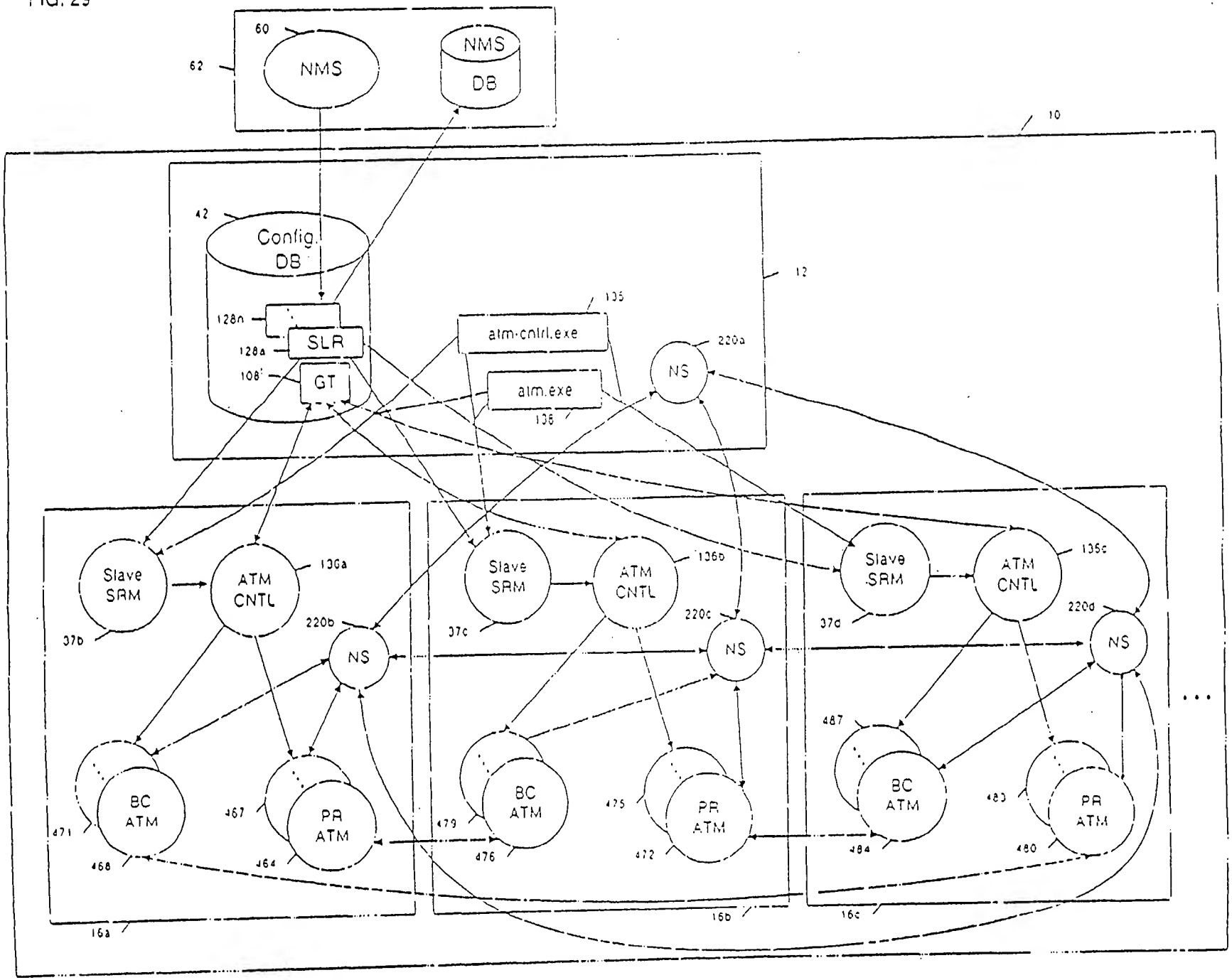


FIG.30

Group Table 108'

	Group #	Primary Card LID (447)	Backup Card LID (449)	...
450	1	30	31	
451	2	30	31	
452	3	30	31	
453	4	30	31	
454	5	31	32	
455	6	31	32	
456	7	31	32	
457	8	31	32	
458	9	32	30	
459	10	32	30	
460	11	32	30	
461	12	32	30	
	⋮	⋮	⋮	⋮

DOCKET NO. 95-1-059

Fig. 31a

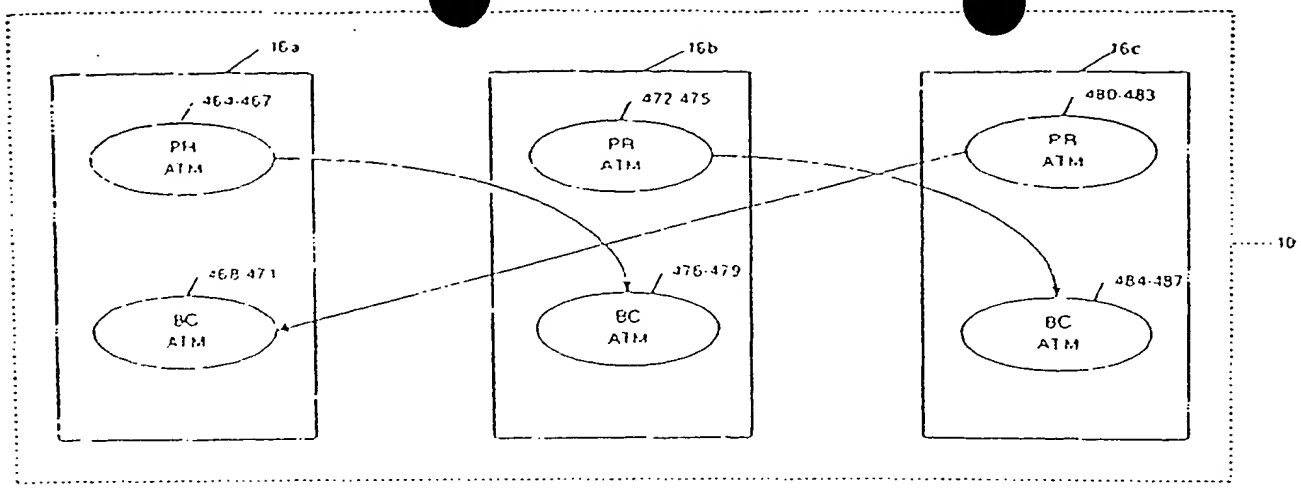


Fig. 31b

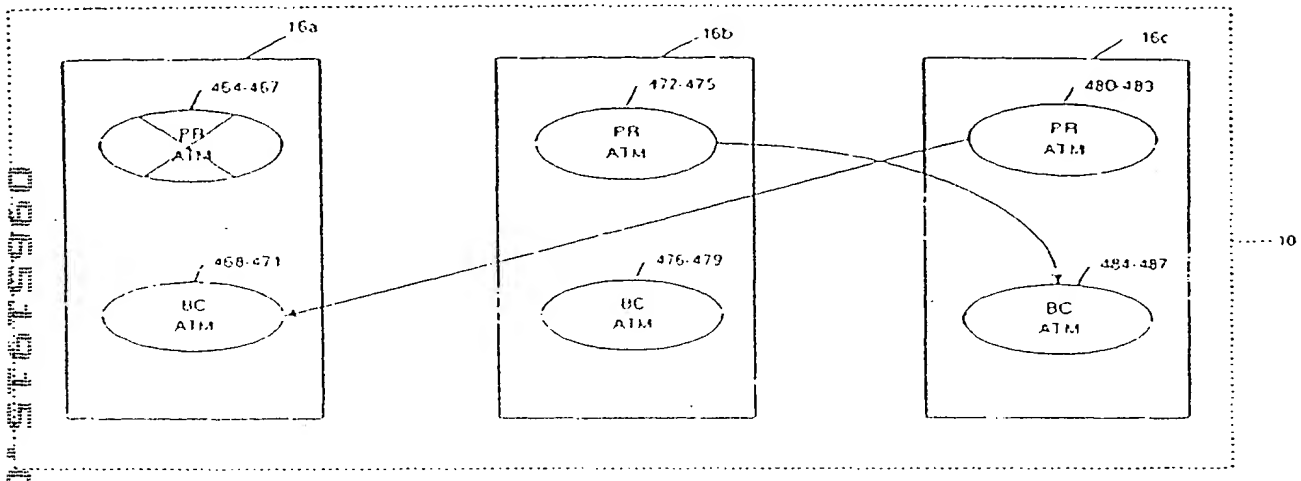


Fig. 31c

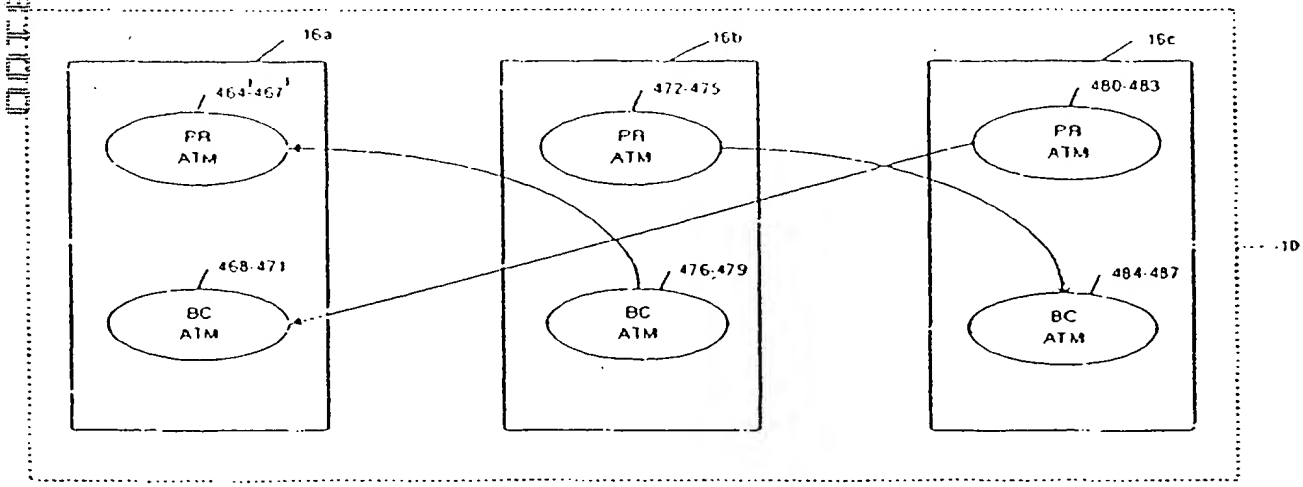


Fig. 32a

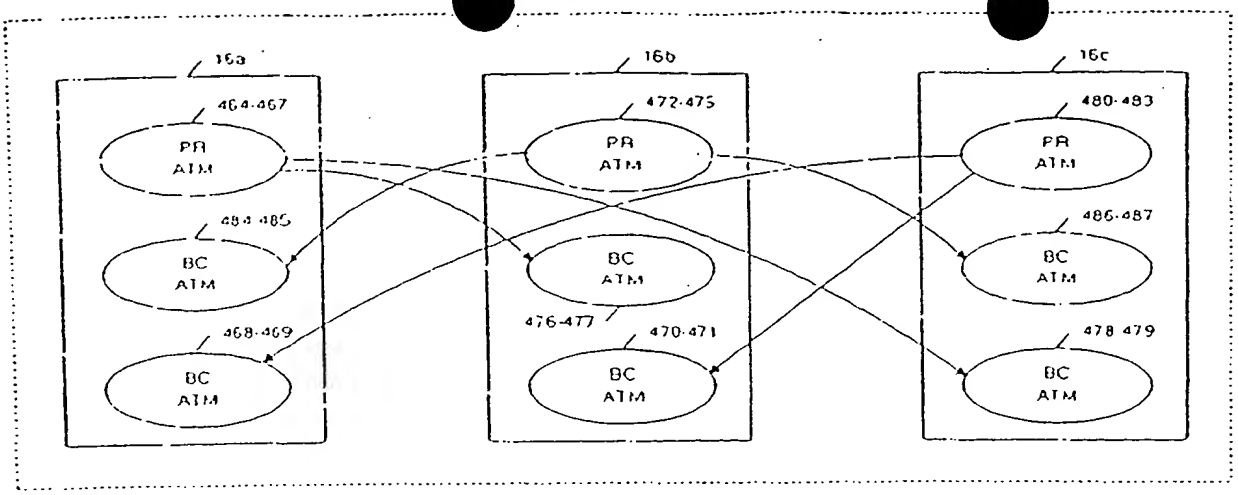


Fig. 32b

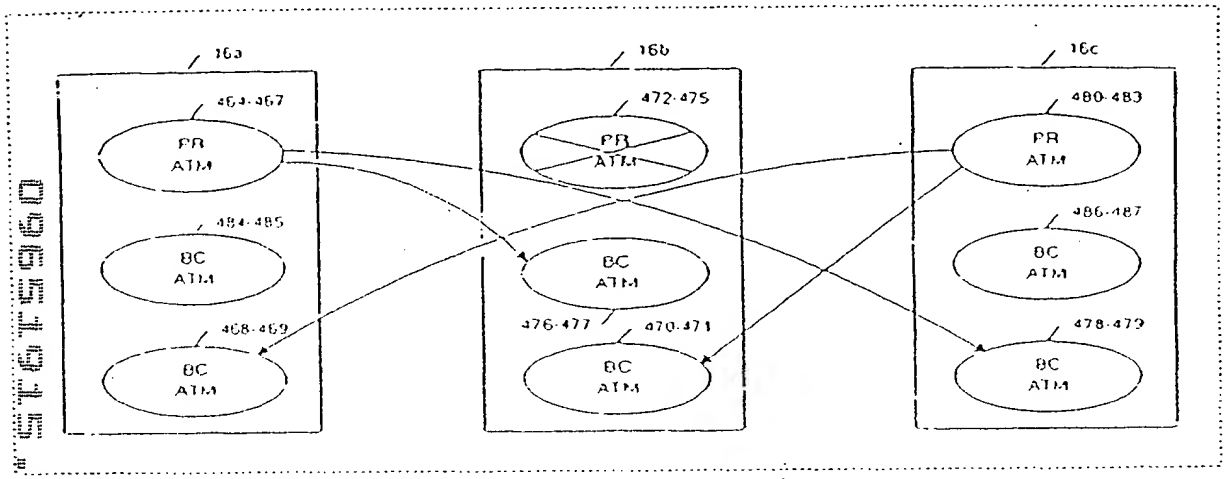


Fig. 32c

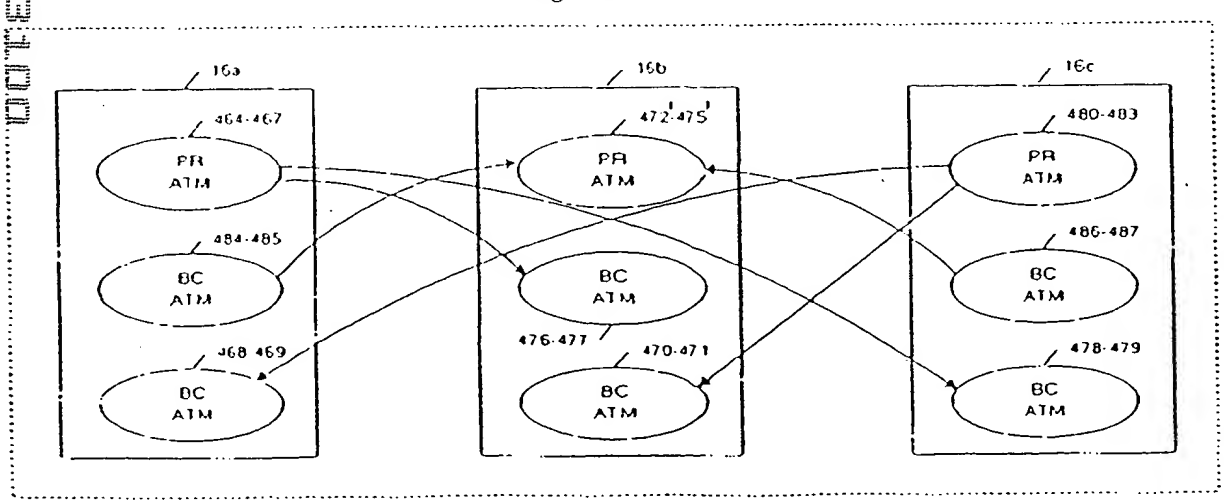


FIG. 33a

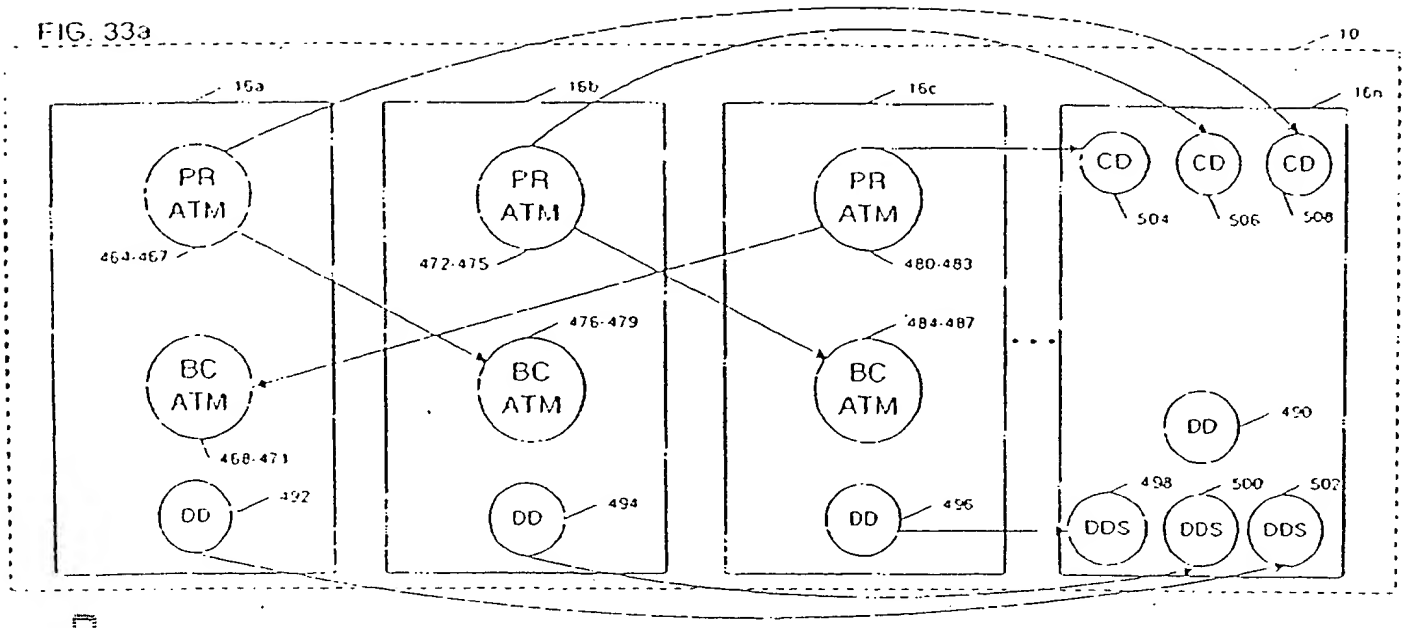


FIG. 33b

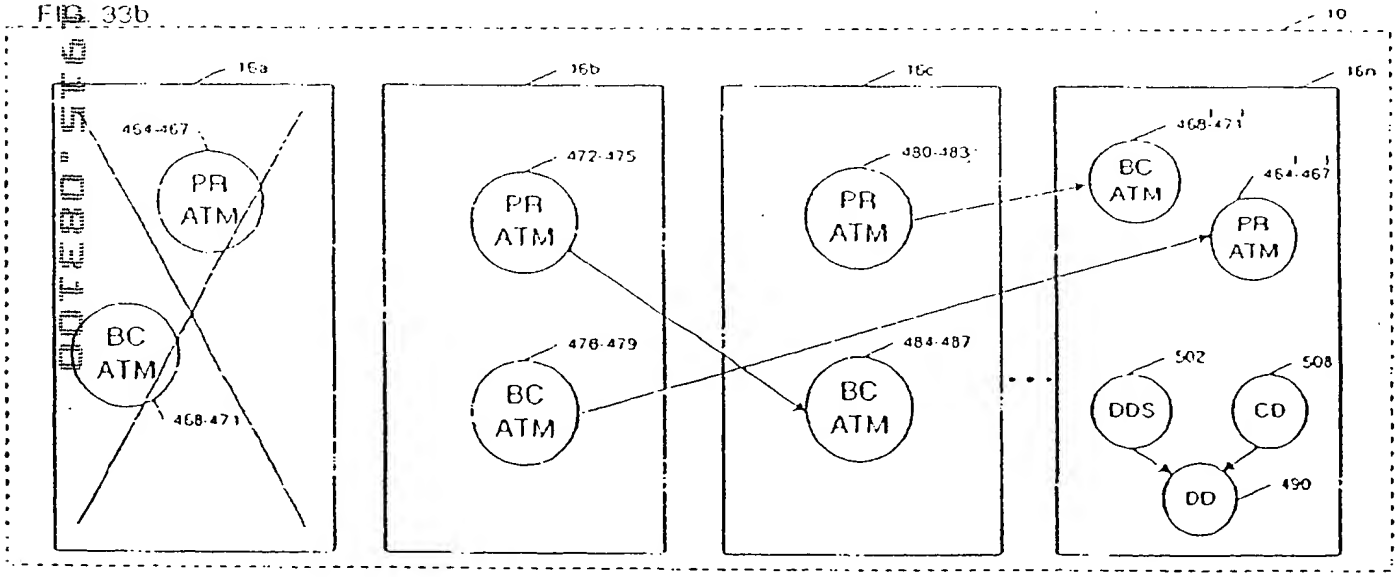


FIG. 33c

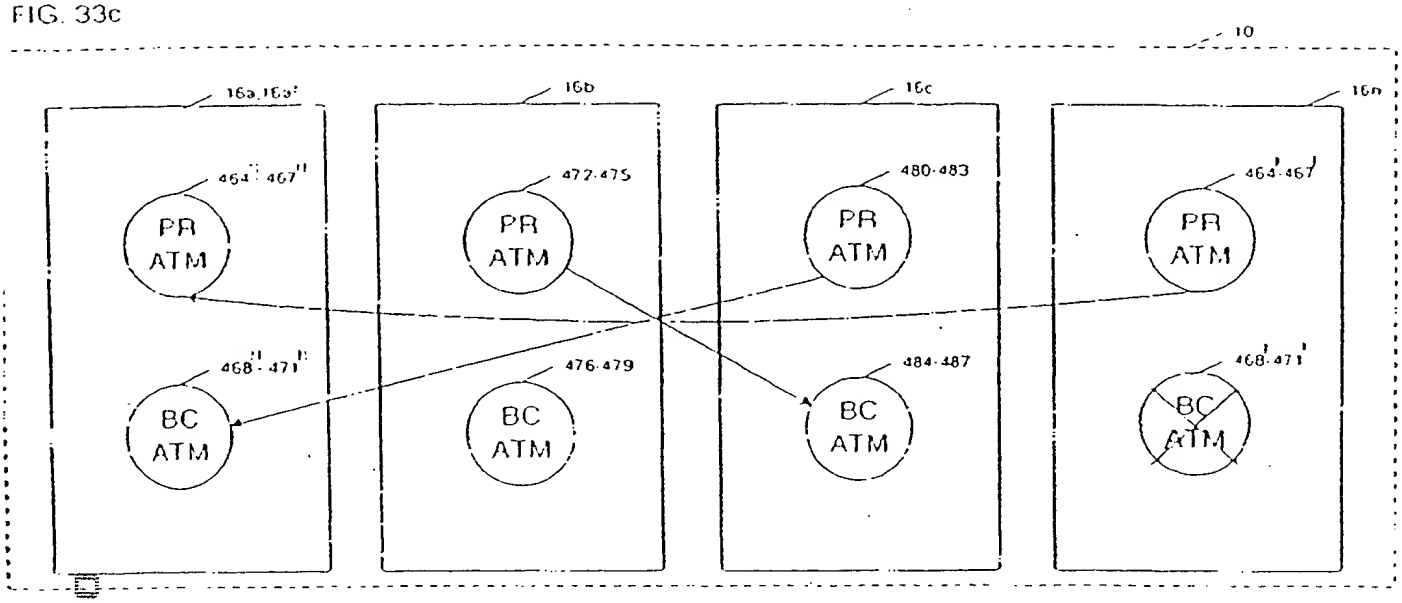


FIG. 33d

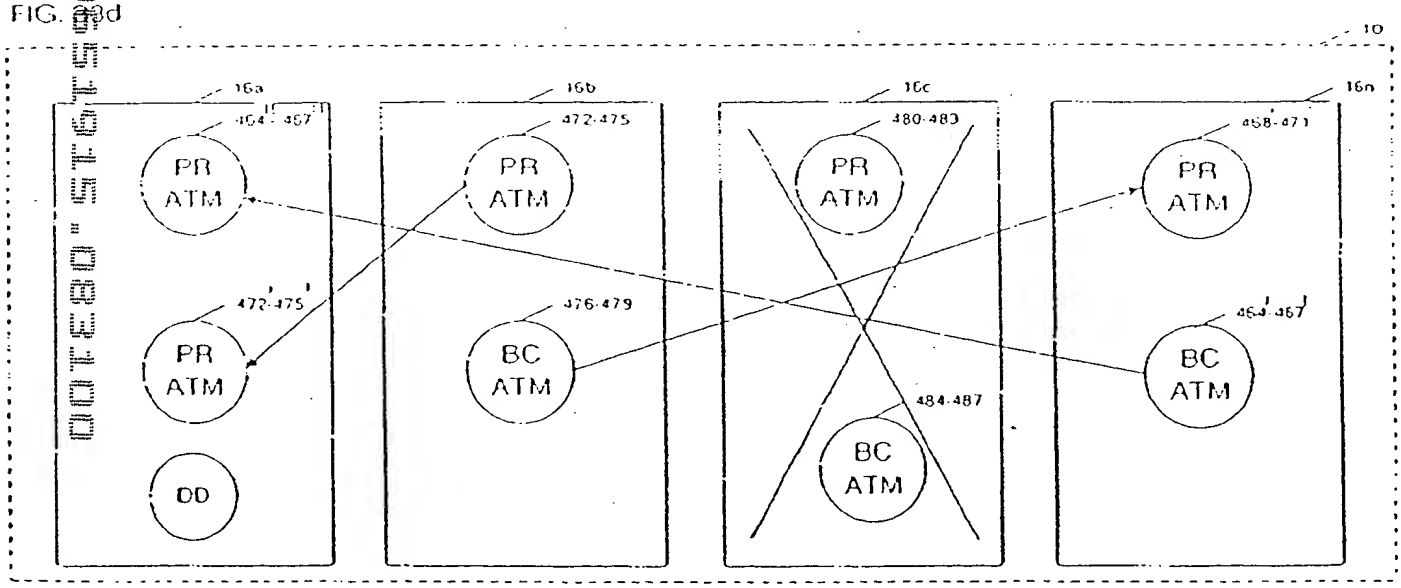


Fig. 34a

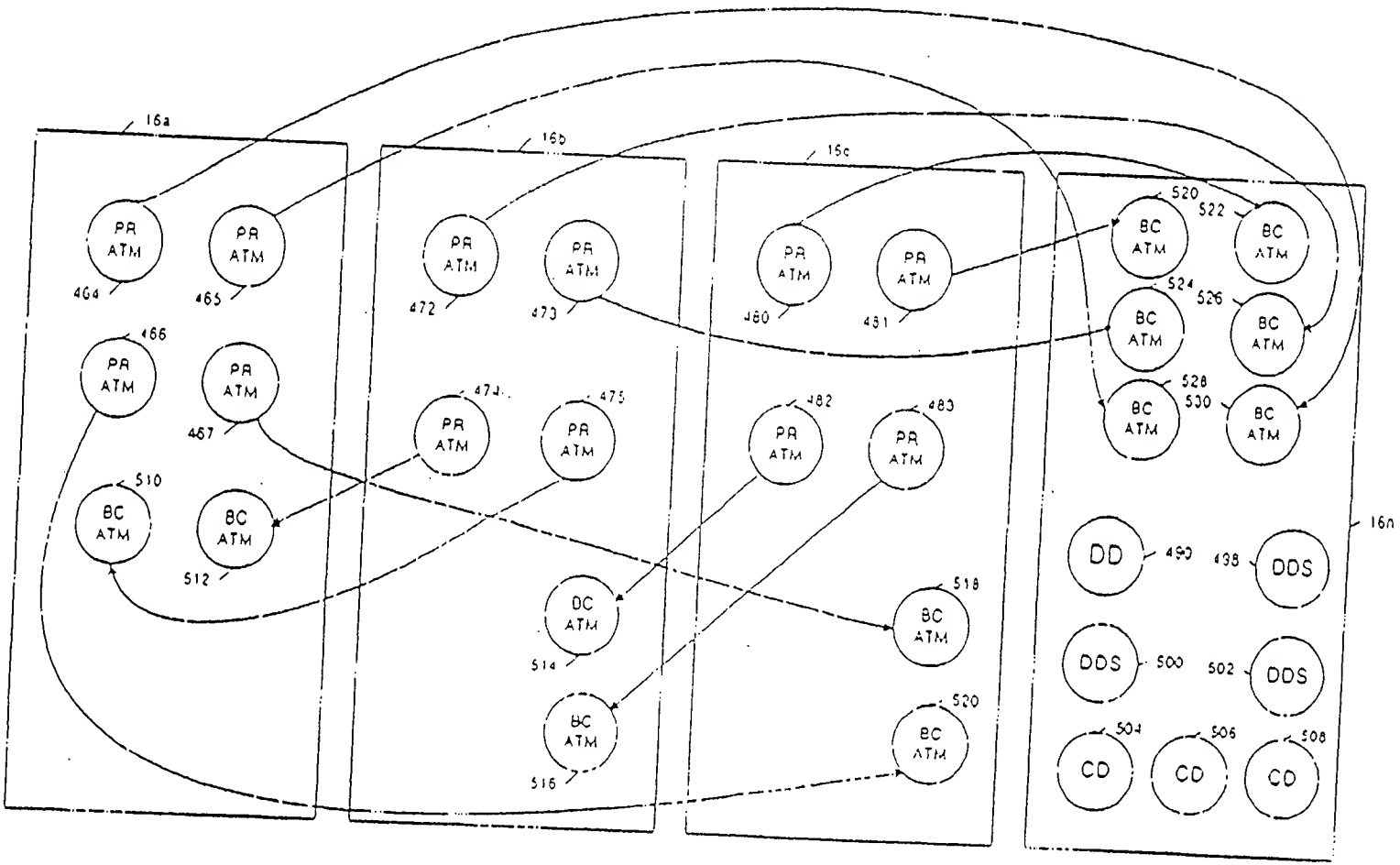
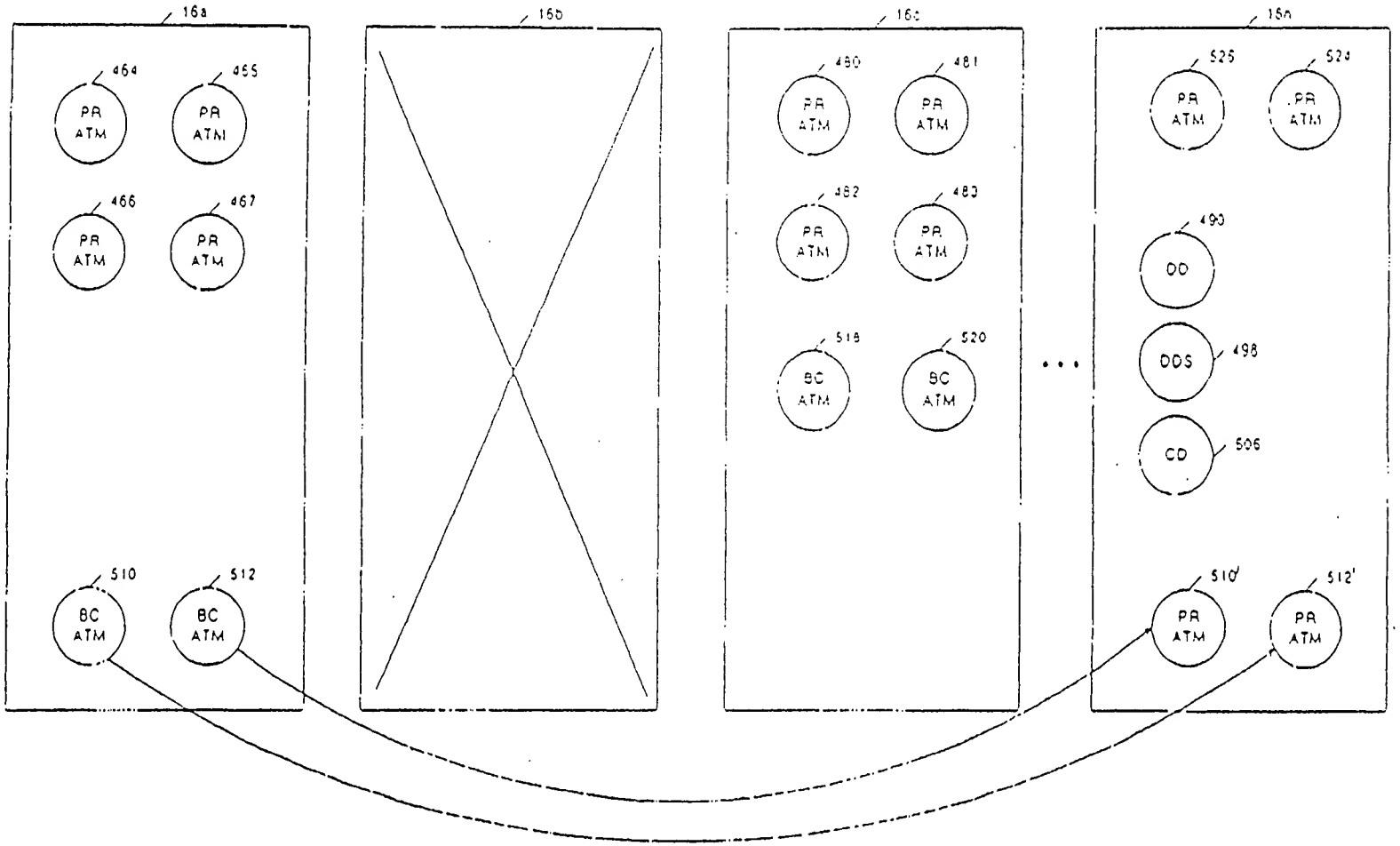

16a
16b
16c
16n
PR ATM
BC ATM
DC ATM
DD
DDS
CD
464
465
466
467
472
473
474
475
480
481
482
483
510
512
514
516
518
520
522
524
526
528
530
490
498
500
502
504
506
508

FIG. 34b


168
464
PR ATM
465
PR ATM
466
PR ATM
467
PR ATM
510
BC ATM
512
BC ATM
160
160
480
PR ATM
481
PR ATM
482
PR ATM
483
PR ATM
518
BC ATM
520
BC ATM
525
PR ATM
526
PR ATM
490
DO
DDS
498
CD
506
510'
PR ATM
512'
PR ATM

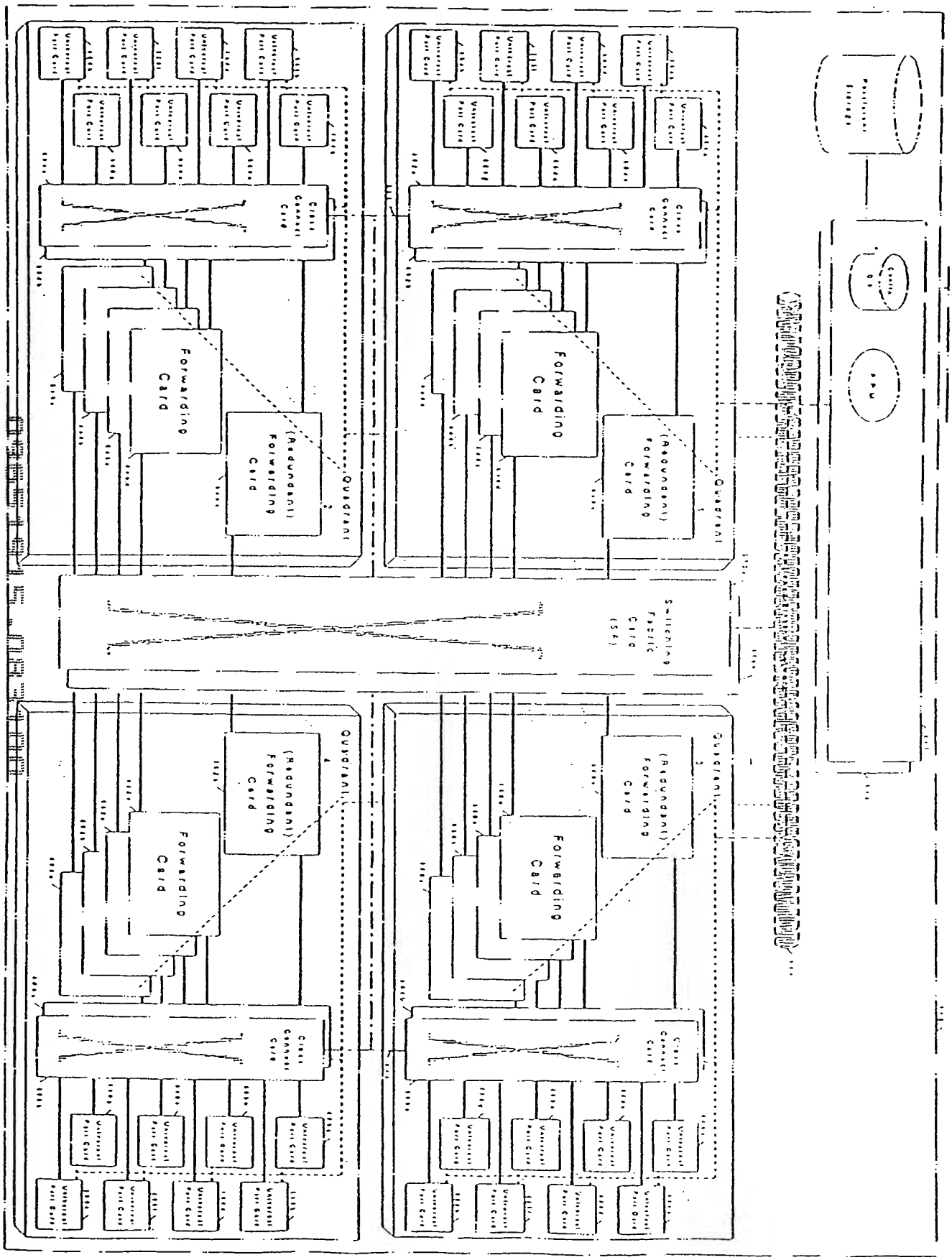

NMS
Forwarding Card
(Redundant) Forwarding Card
Quadrant
Switching Fabric Card (SFC)

FIG. 35

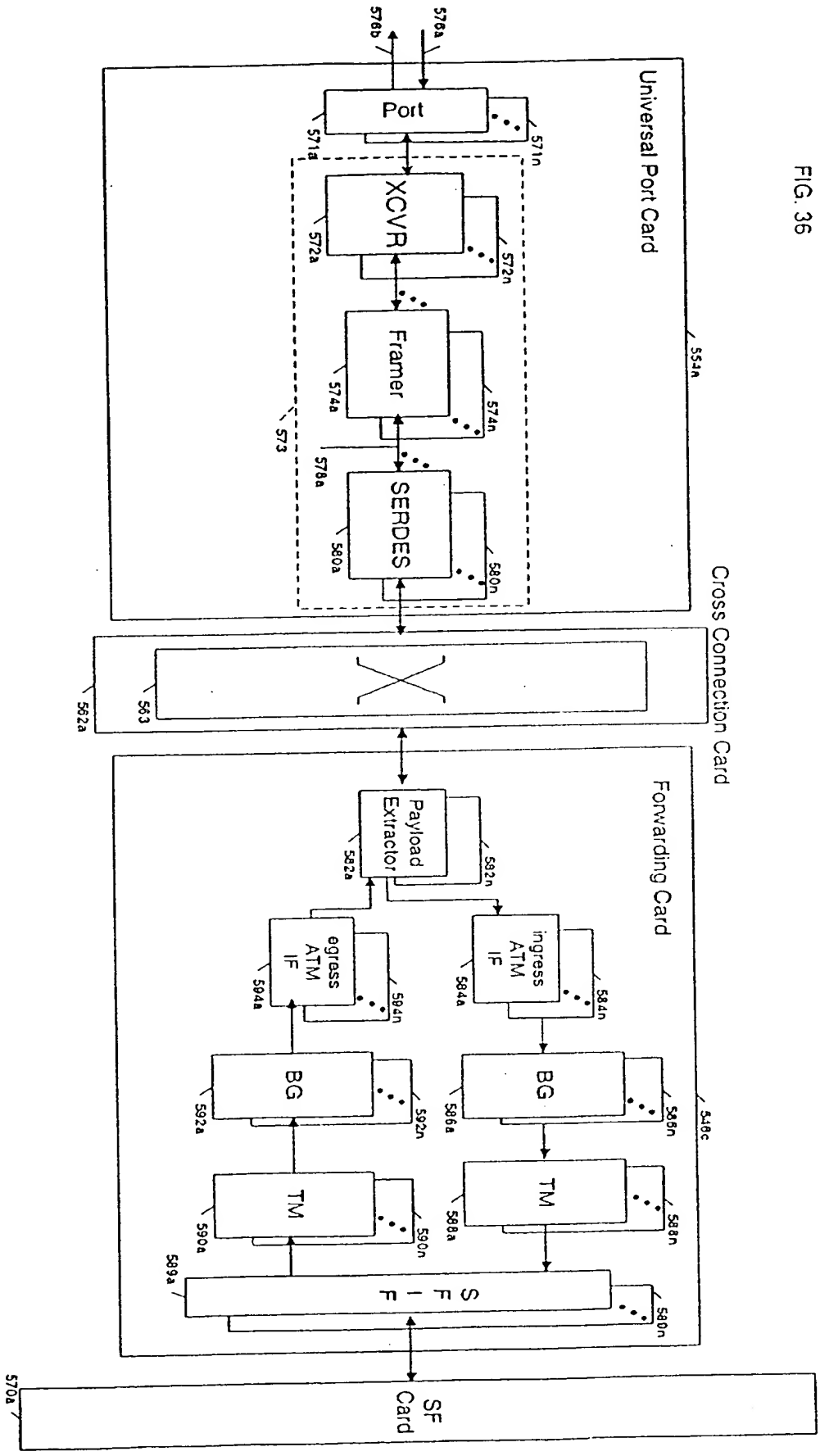
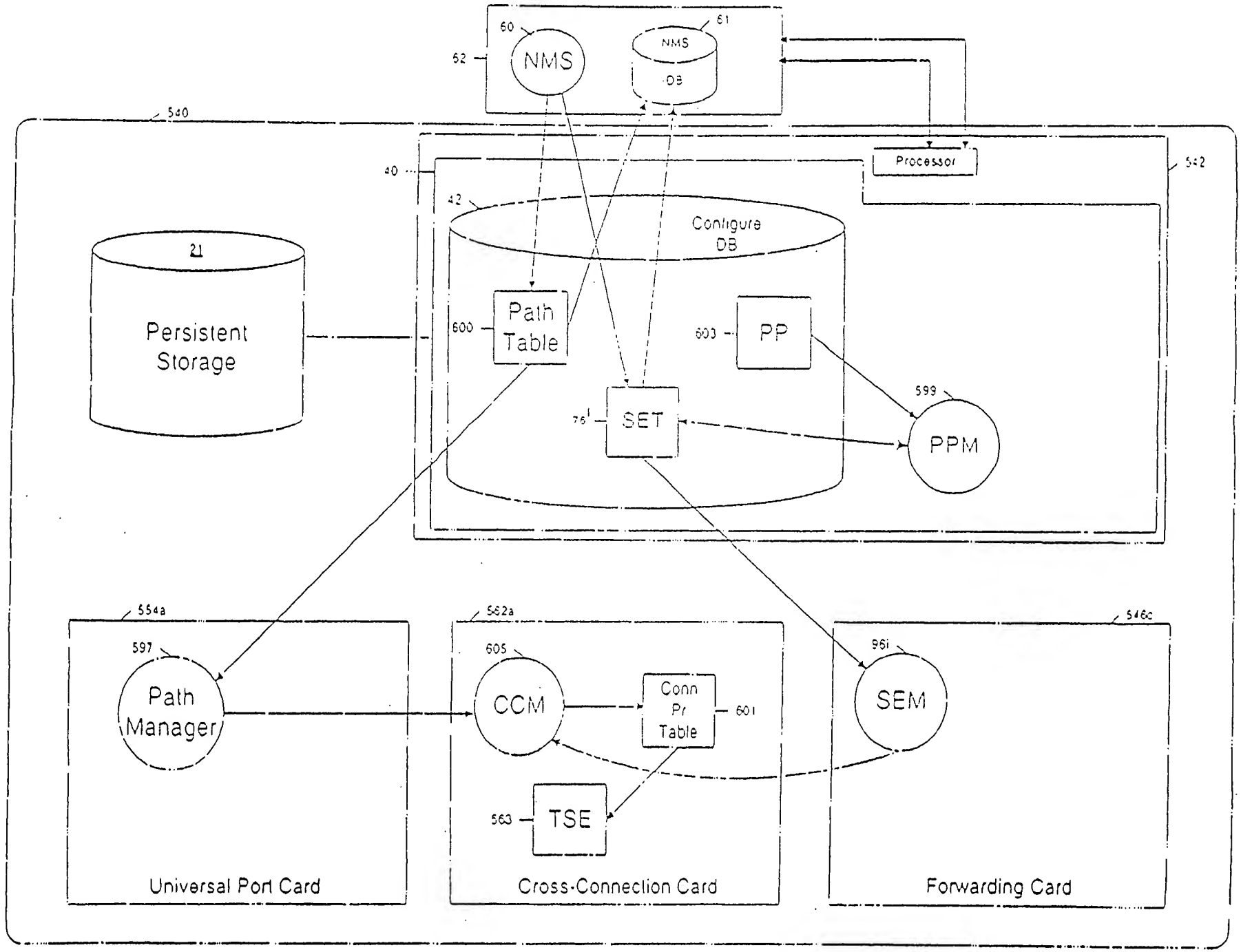

Universal Port Card
Port
XCVR
Framer
SERDES
Cross Connection Card
Forwarding Card
Payload Extractor
ingress ATM IF
egress ATM IF
BG
TM
S F I F
SF Card

FIG. 36

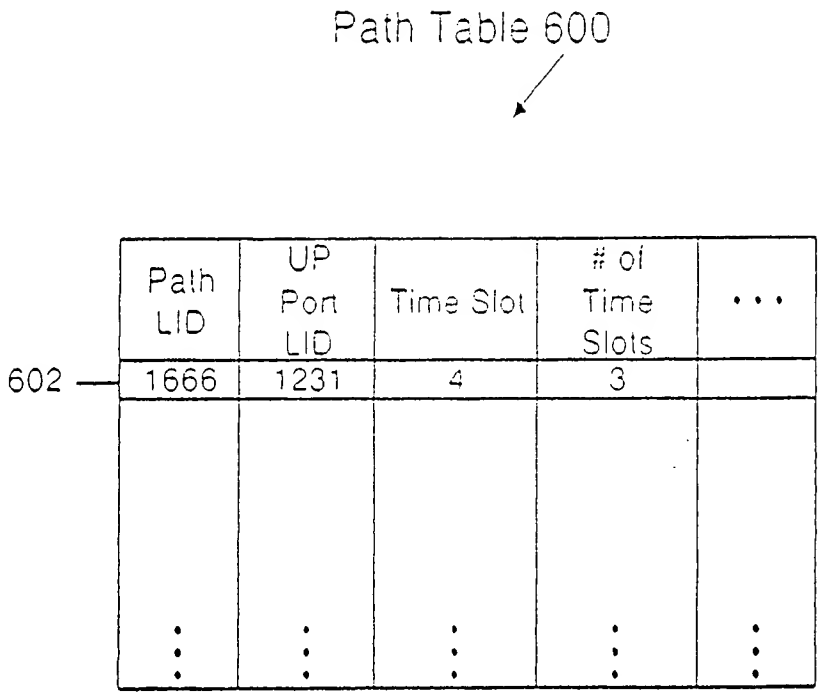
FIG. 37

0076807 5765960



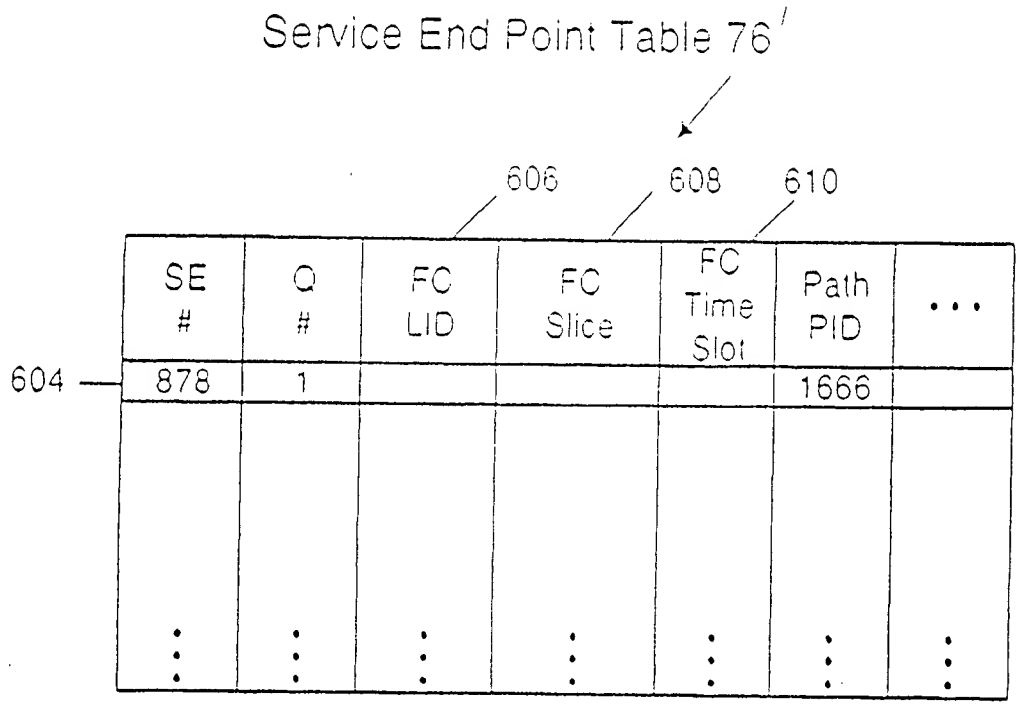
00TE80" ST6T5960

FIG. 38



0078807 5761960

FIG. 39



0065745-0830100

Fig. 40

FIG. 41a
Front

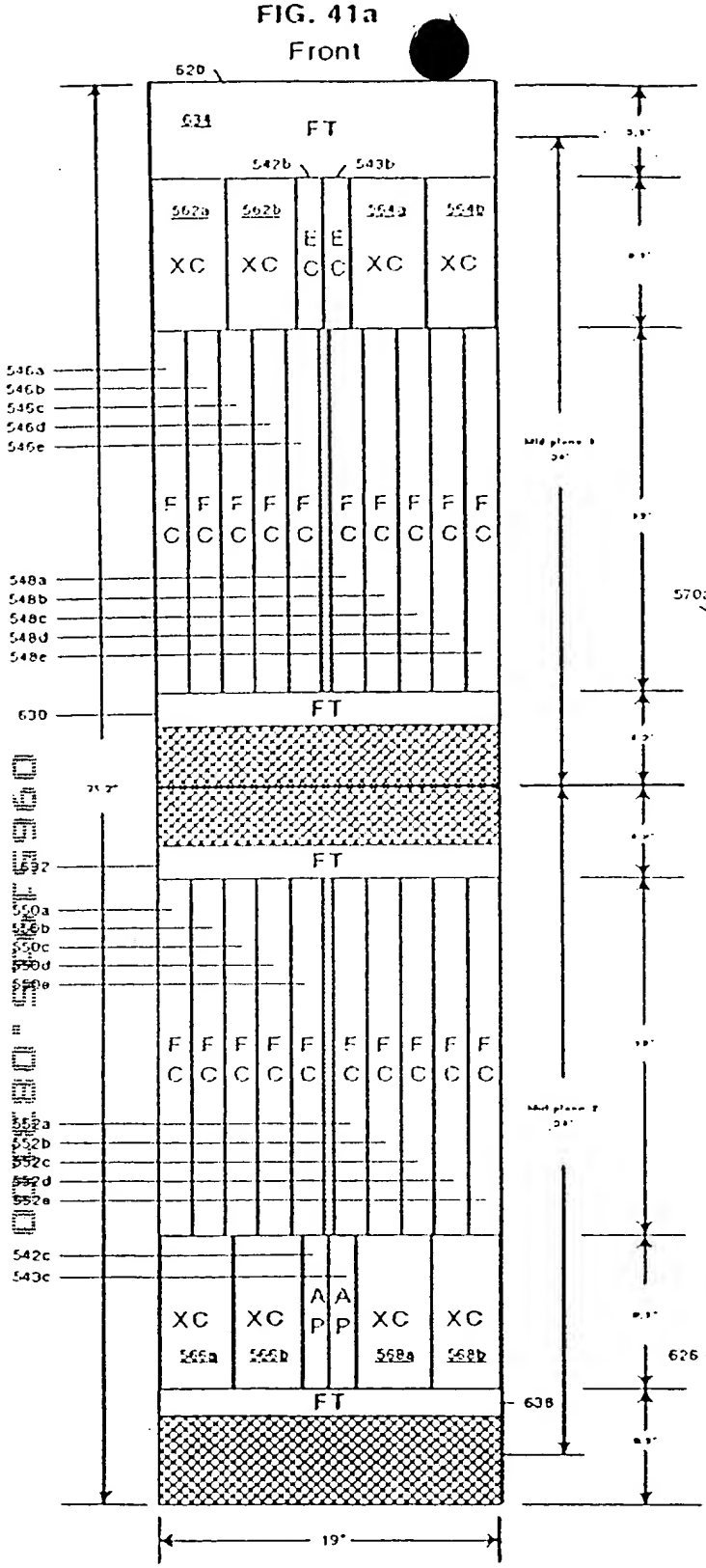


FIG. 41b
Back

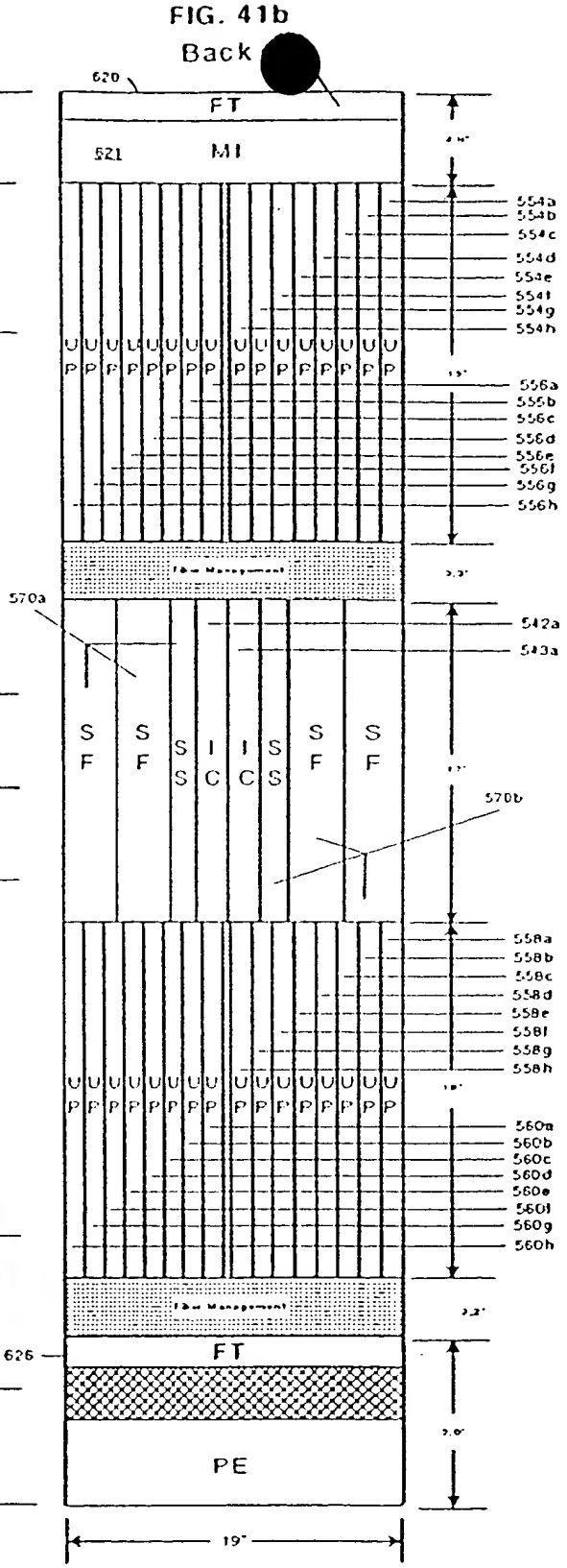
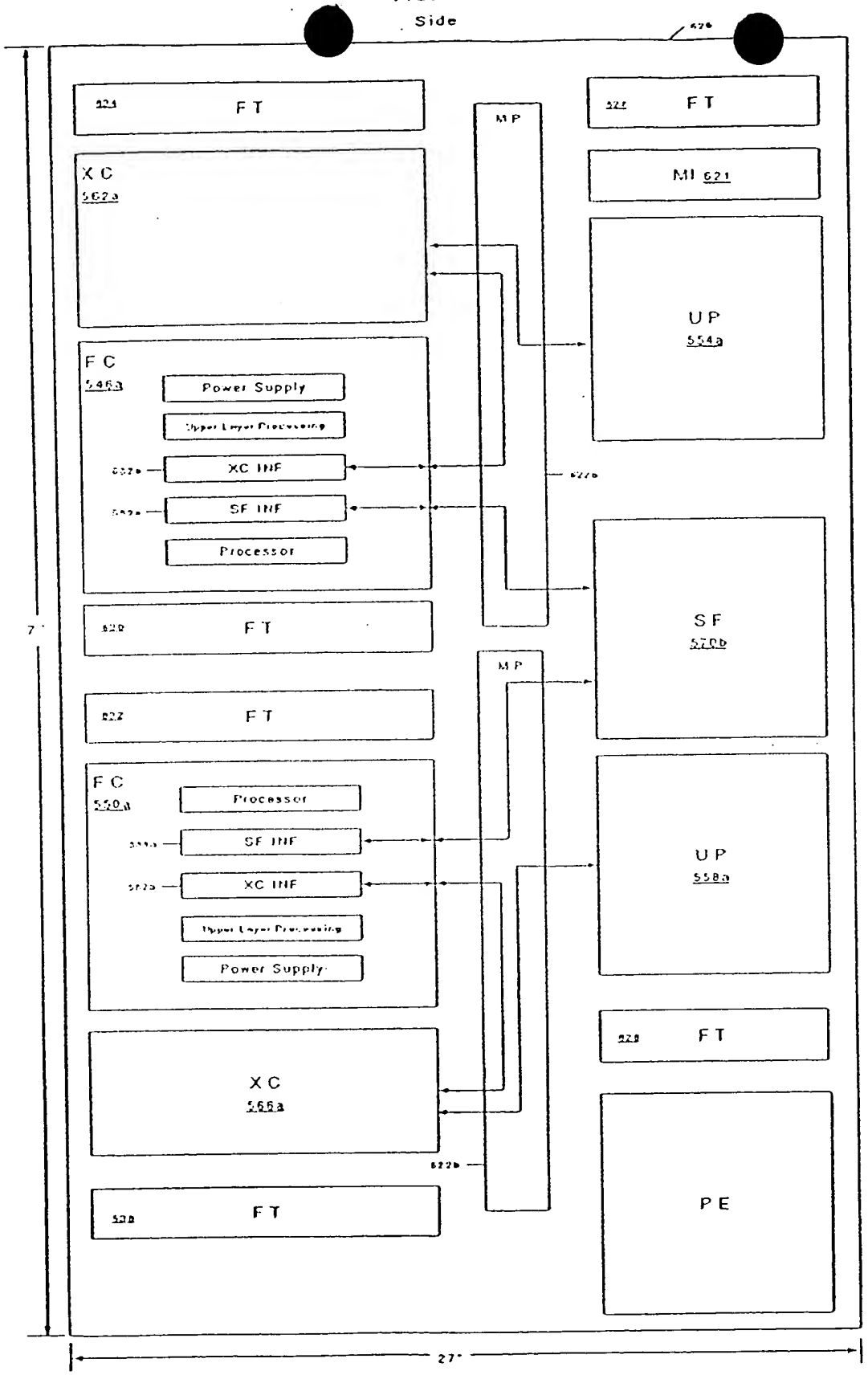


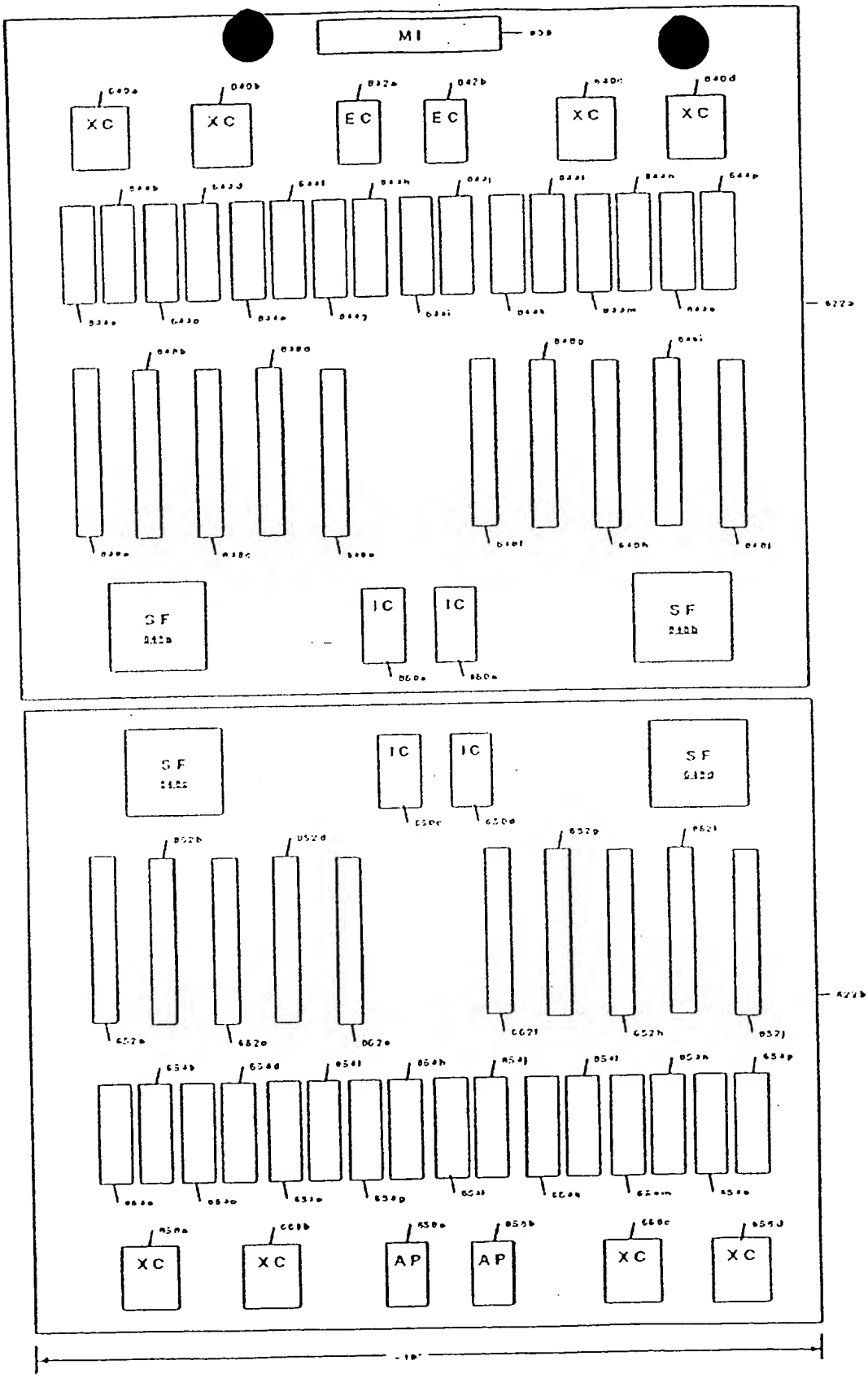
FIG. 41c

Side



0065435-0080406

FIG. 42



US 6,963,345 B2

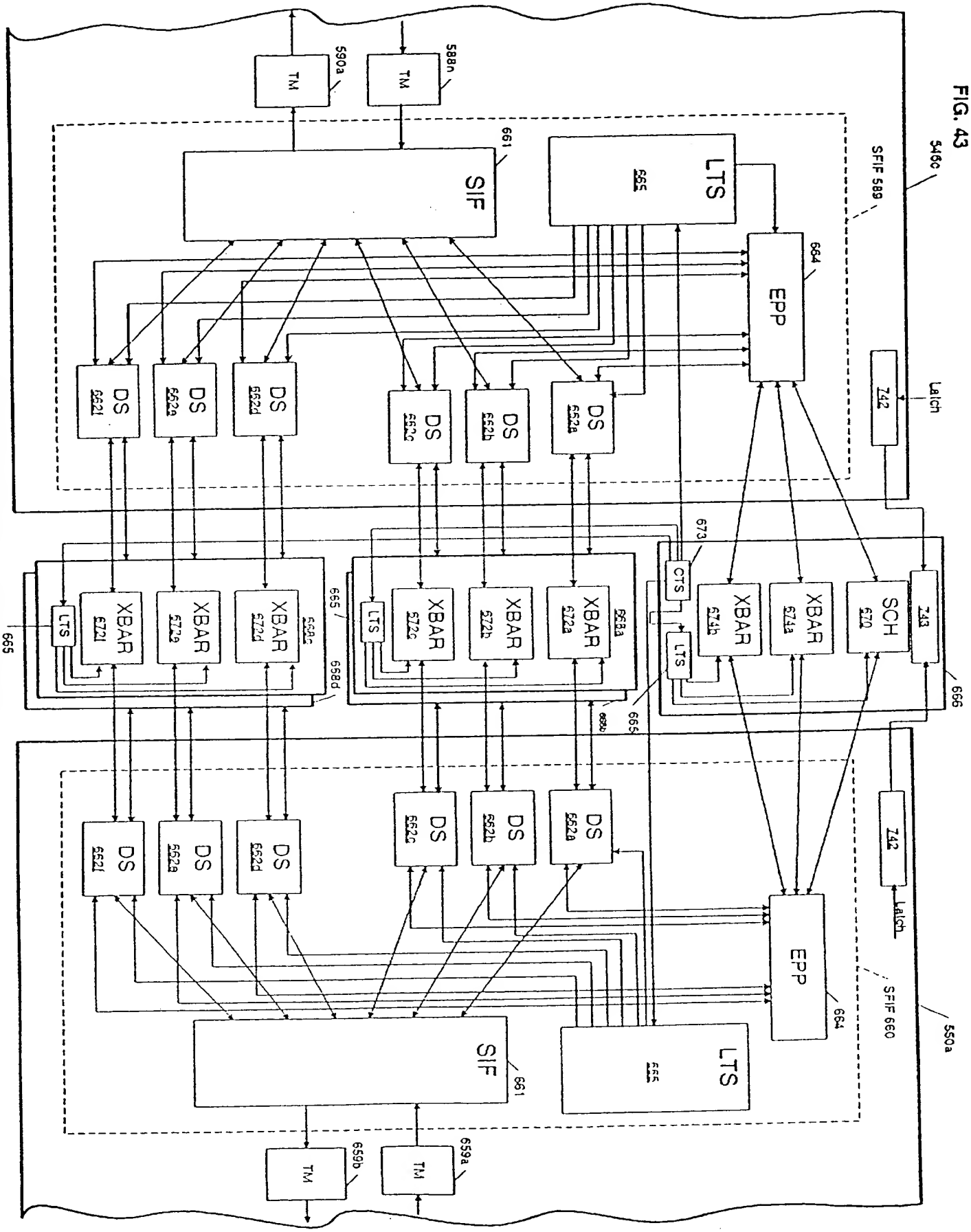

TM
590a
588n
SIF
661
LTS
555
SFIF 589
546c
EPP
664
742
Latch
DS
552a
552b
552c
552d
552e
552f
XBAR
572a
572b
572c
572d
572e
572f
LTS
555
665
668a
668b
668c
668d
673
CTS
671a
671b
SCH
670
743
666
SFIF 660
550a
659a
659b

FIG. 43

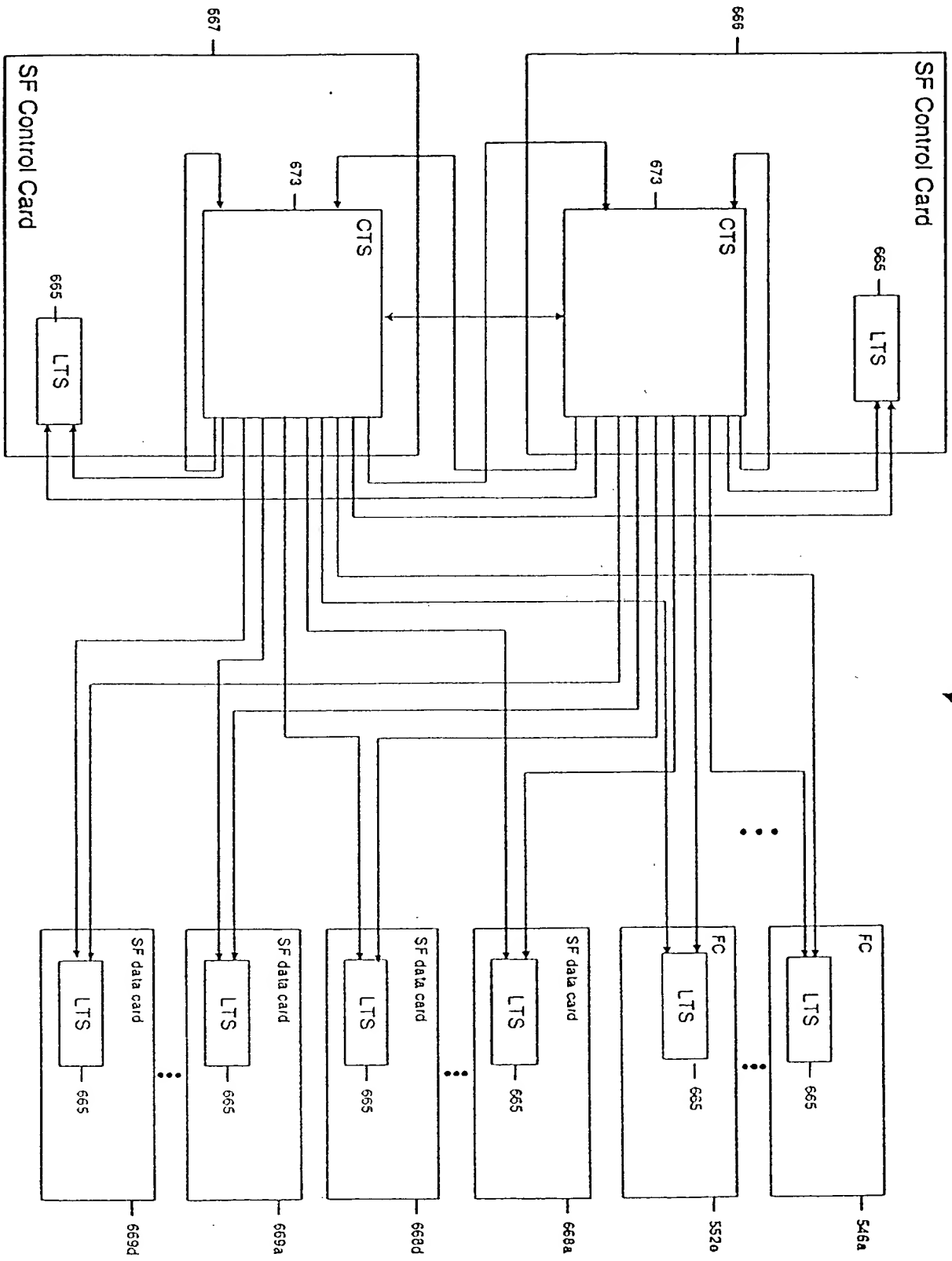
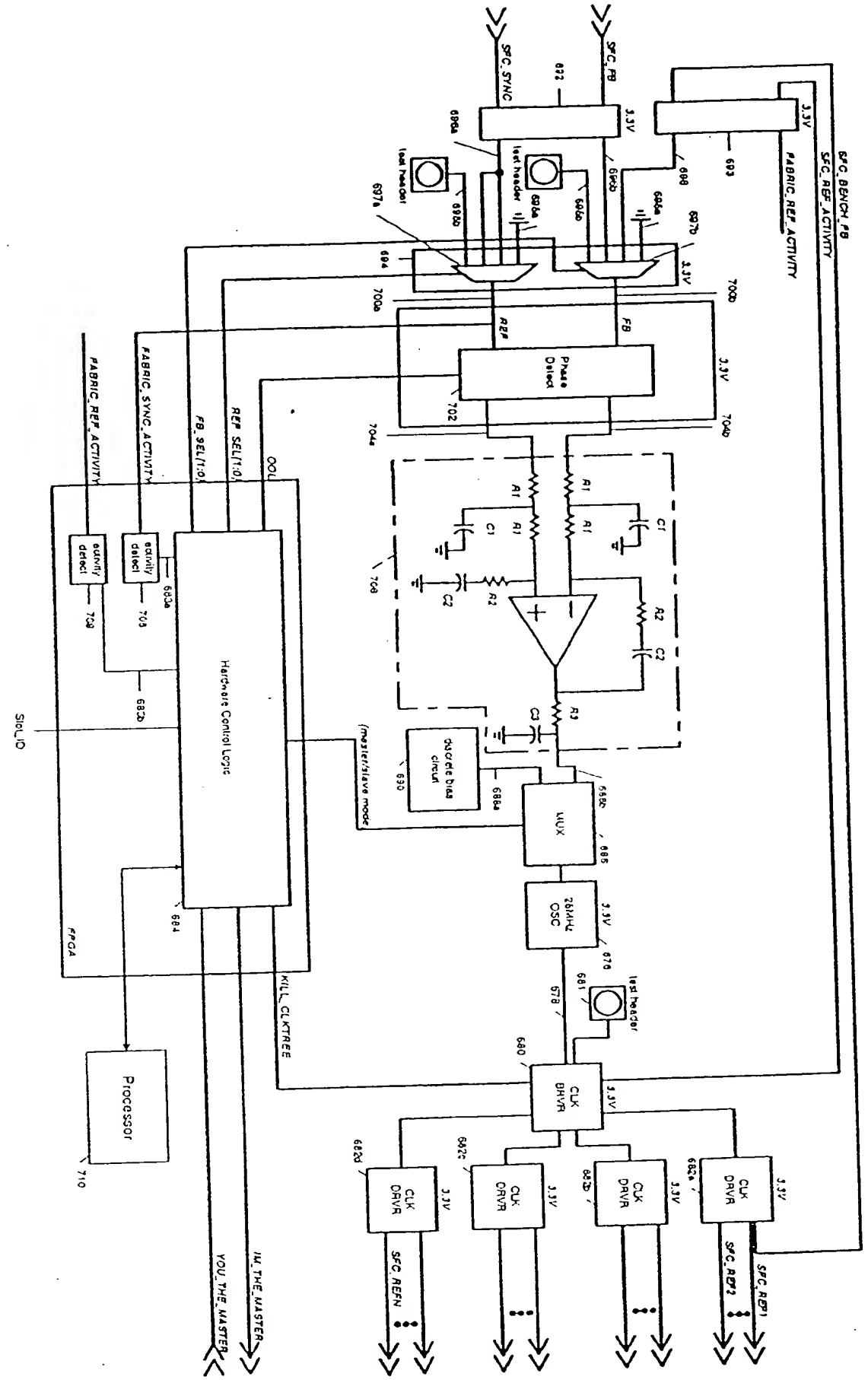


FIG. 44

09543485 - 063000

FIG. 45


SFC_SYNC
SFC_FB
SFC_BENCH_FB
SFC_REF_ACTIVITY
FABRIC_REF_ACTIVITY
3.3V
test header
REF
FB
Phase Detect
FABRIC_REF_ACTIVITY
FABRIC_SYNC_ACTIVITY
FB_SEL(1:0)
REF_SEL(1:0)
activity detect
Hardware Control Logic
SIO_IO
FPGA
Processor
(master/slave mode)
oscillate bias circuit
MUX
26MHz OSC
CLK DRVR
KILL_CLKTREE
SFC_REFn
IM_THE_MASTER
YOU_THE_MASTER
CTS
673

0960-5934-0900

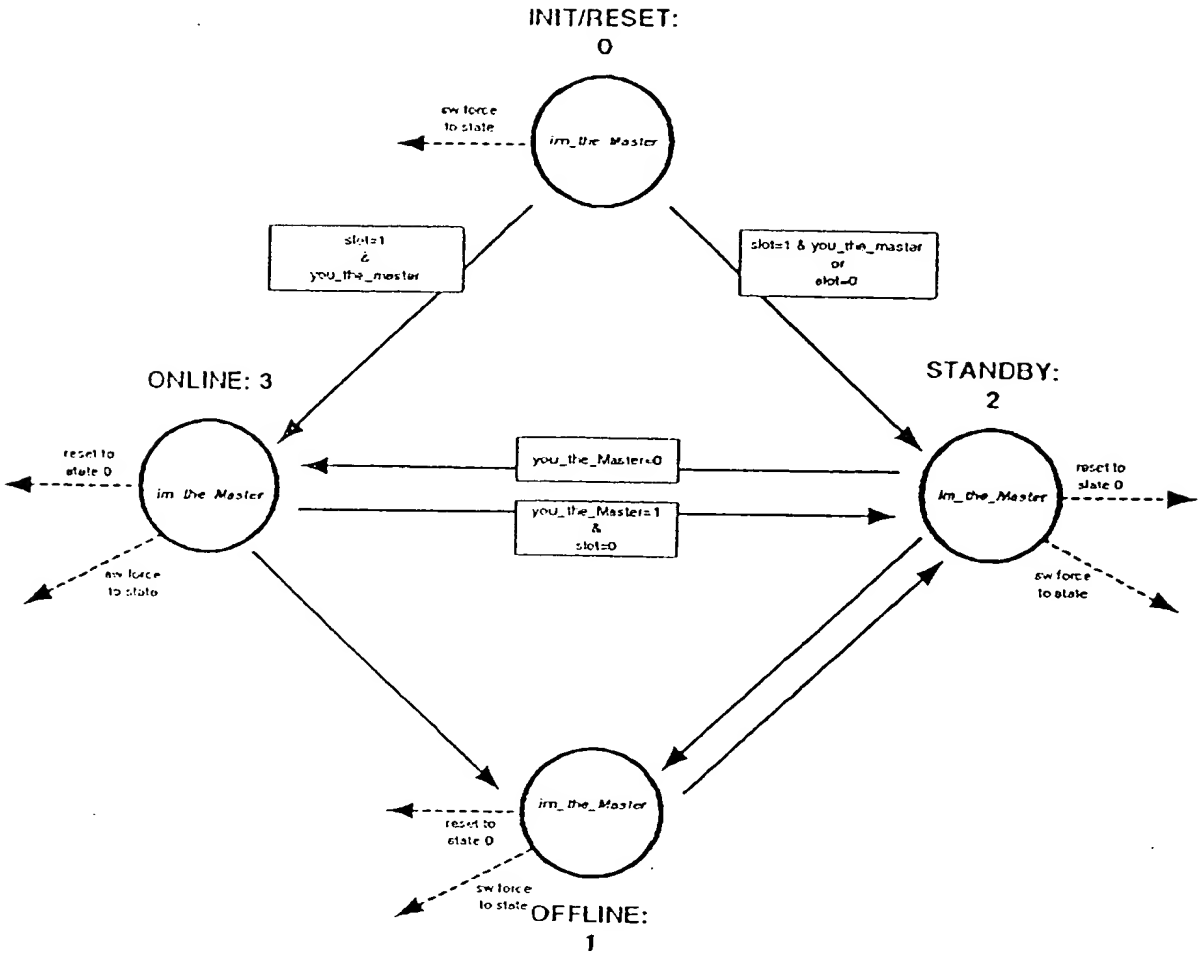


FIG. 46

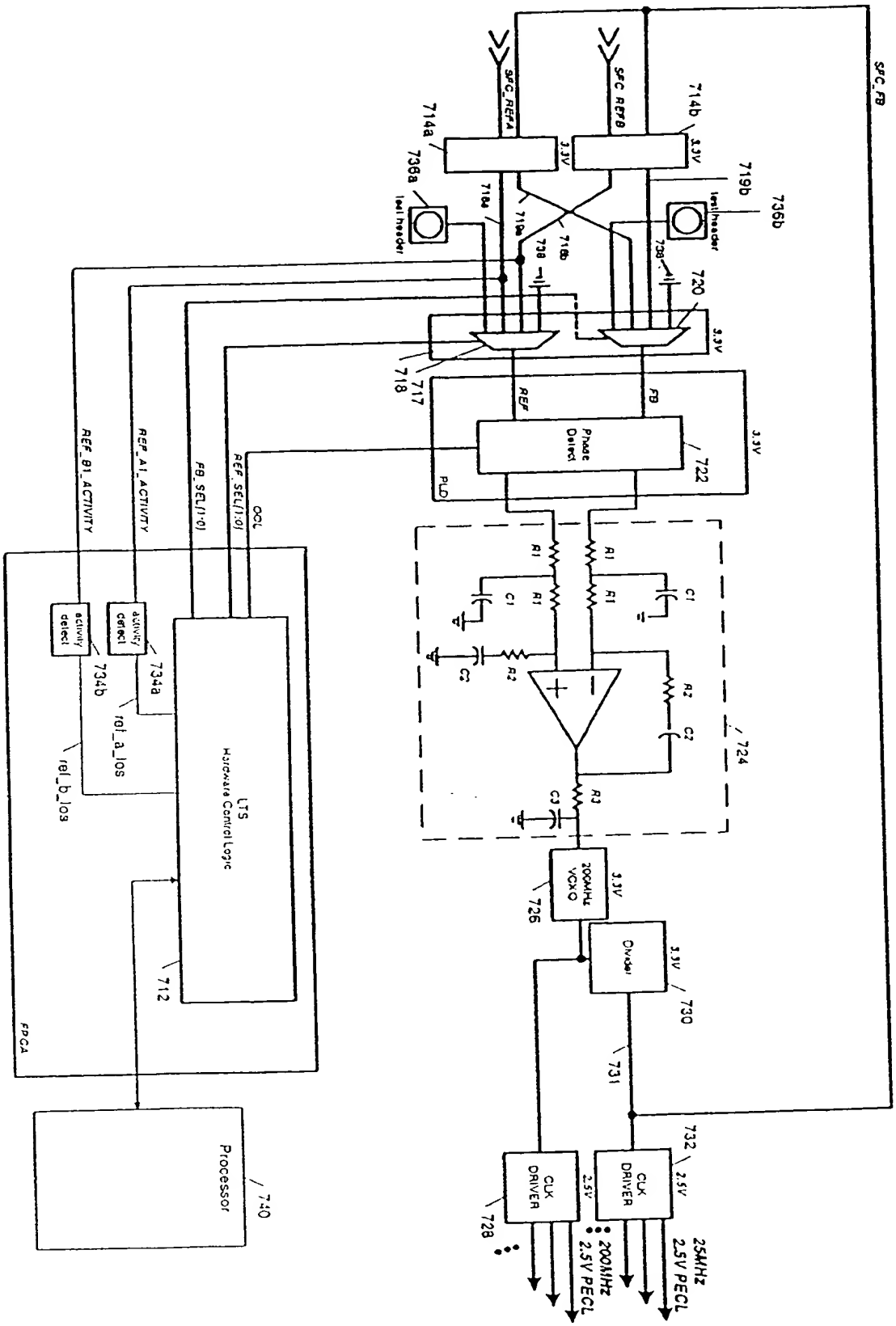


FIG. 47

DESIGNED - DESIGNED

0605150-080300

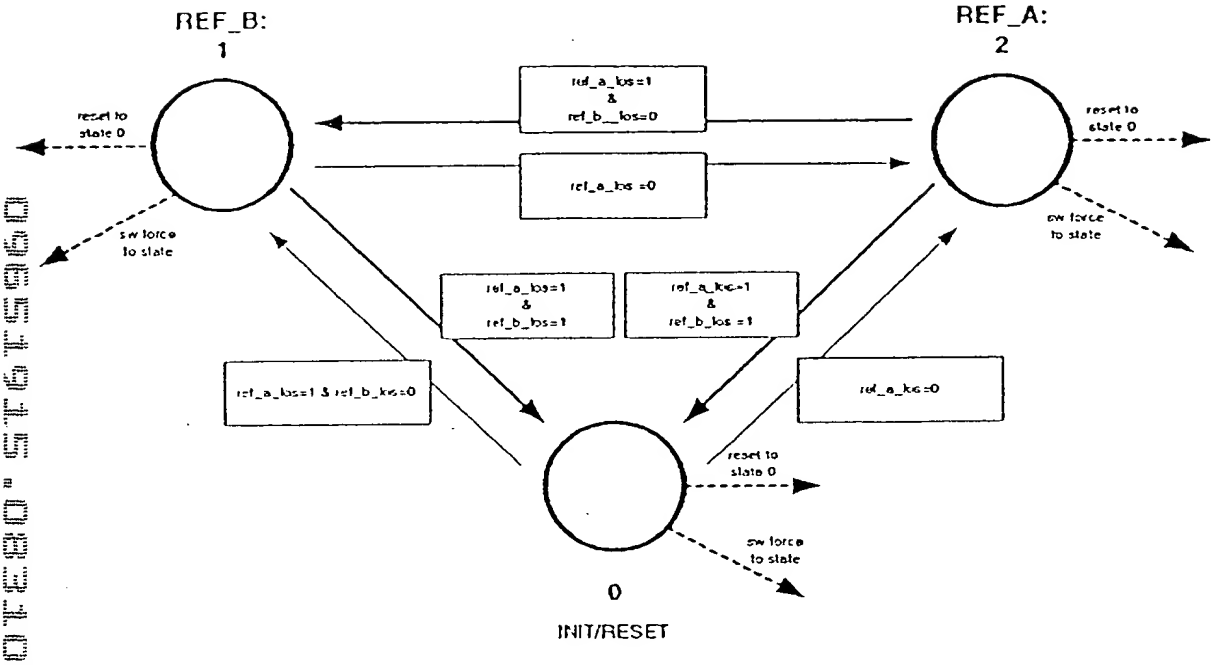


FIG. 48

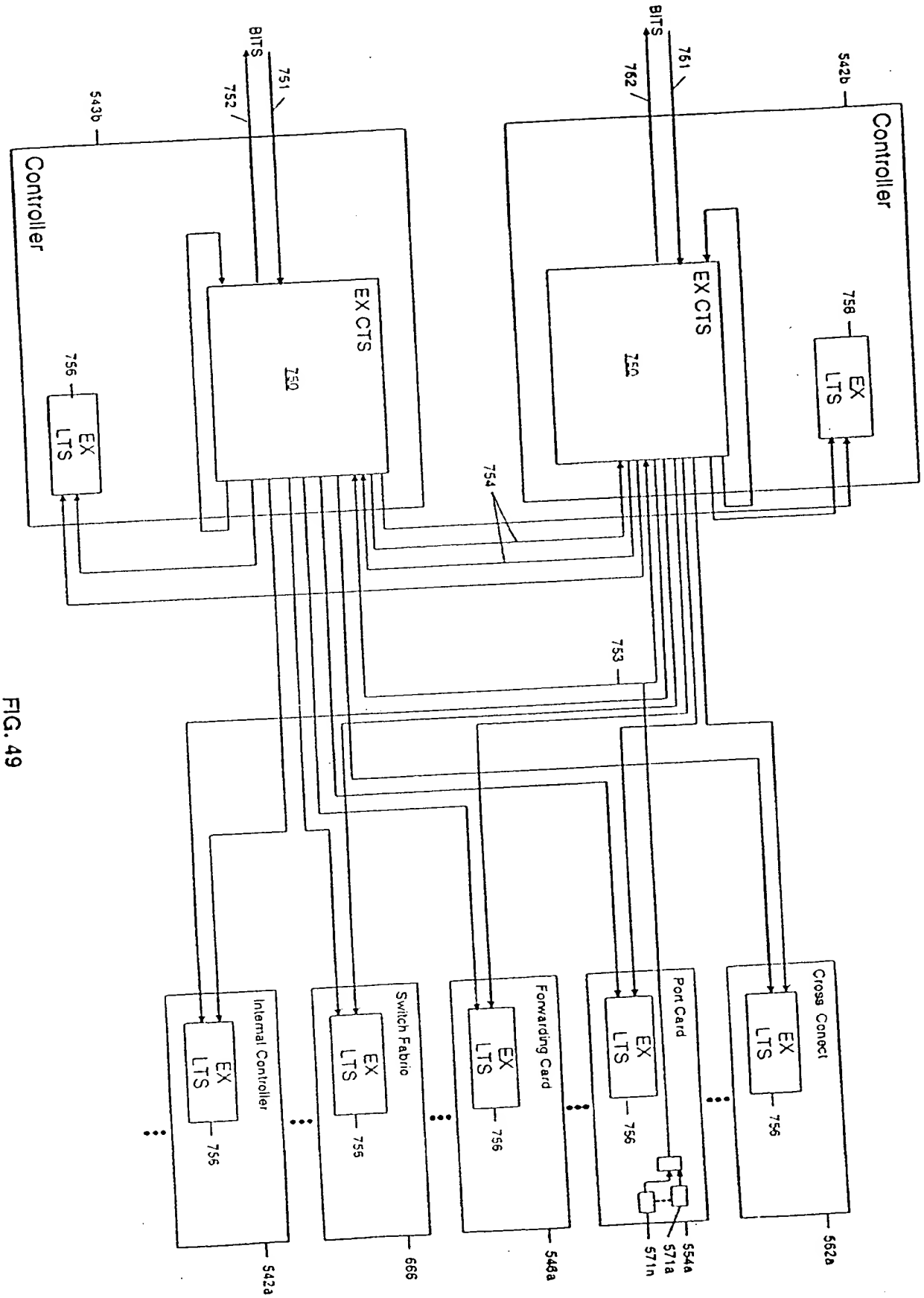
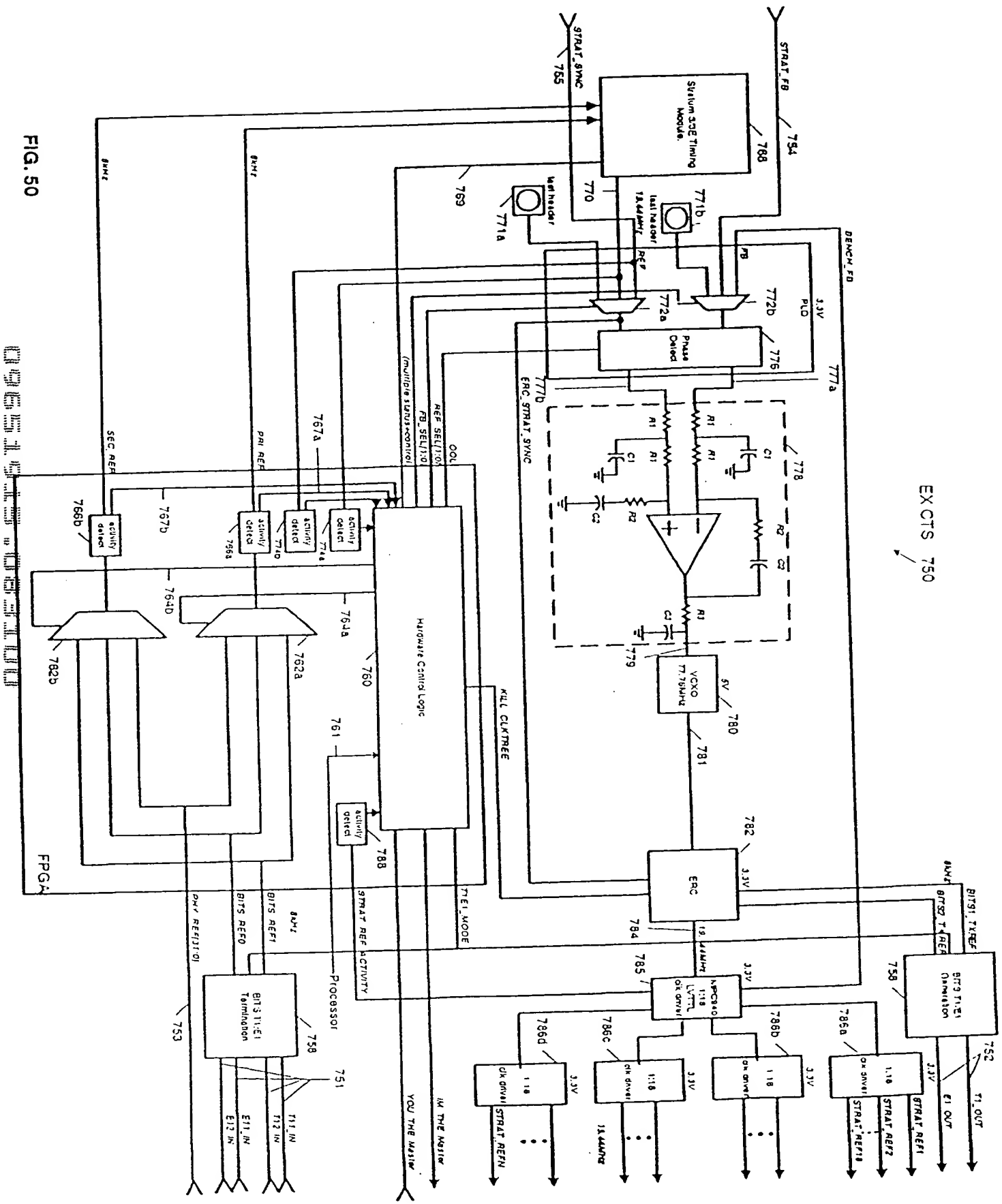

BITS
751
762
542b
Controller
EX CTS
750
758
EX LTS
BITS
751
752
543b
Controller
EX CTS
750
756
EX LTS
754
753
540
Cross Connect
EX LTS
756
562a
Port Card
EX LTS
756
554a
571a
571n
Forwarding Card
EX LTS
756
548a
Switch Fabric
EX LTS
755
666
Internal Controller
EX LTS
756
542a

FIG. 49

FIG. 50


EXCTS 750
FPGA
STRAT_SYNC
STRAT_FB
System 3GE Timing Module
Watchdog
Hardware Control Logic
KILL CLKTREE
TEI_MODE
ERC
PHY REF[3:0]
BITS REF1
BITS REF0
BITS TEI Termination
Processor
BITS TEI Generation
STRAT_REF1
STRAT_REF2
STRAT_REF3
E1 OUT
T1 OUT
YOU THE MASTER
IM THE MASTER
PLD
Phase Detect
VCXO
Activity detect
LVTTL clk driver
1:10
SEC_REF
PRI_REF
REF_SELECTION
FB_SELECT[1:0]
ERC_STRAT_SYNC
BENCH_FB

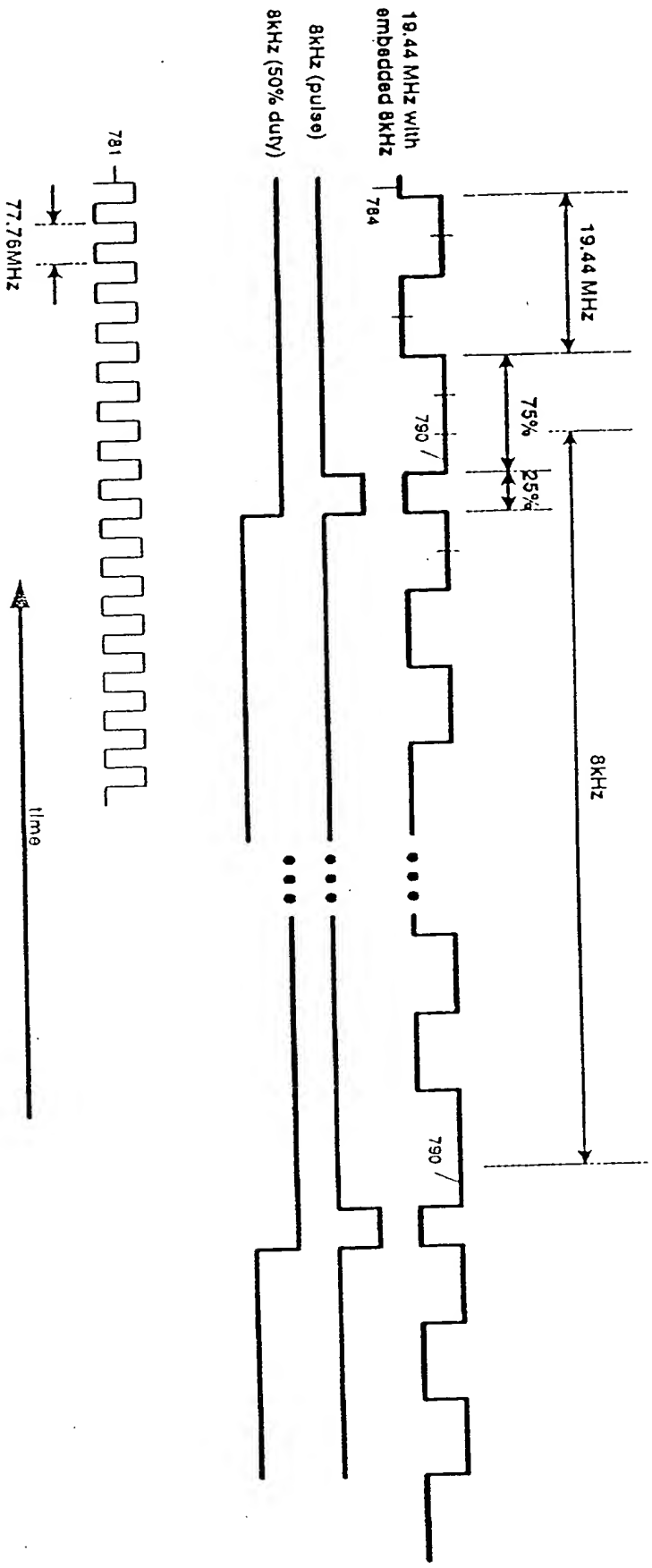


FIG. 51

0653935 "0830400

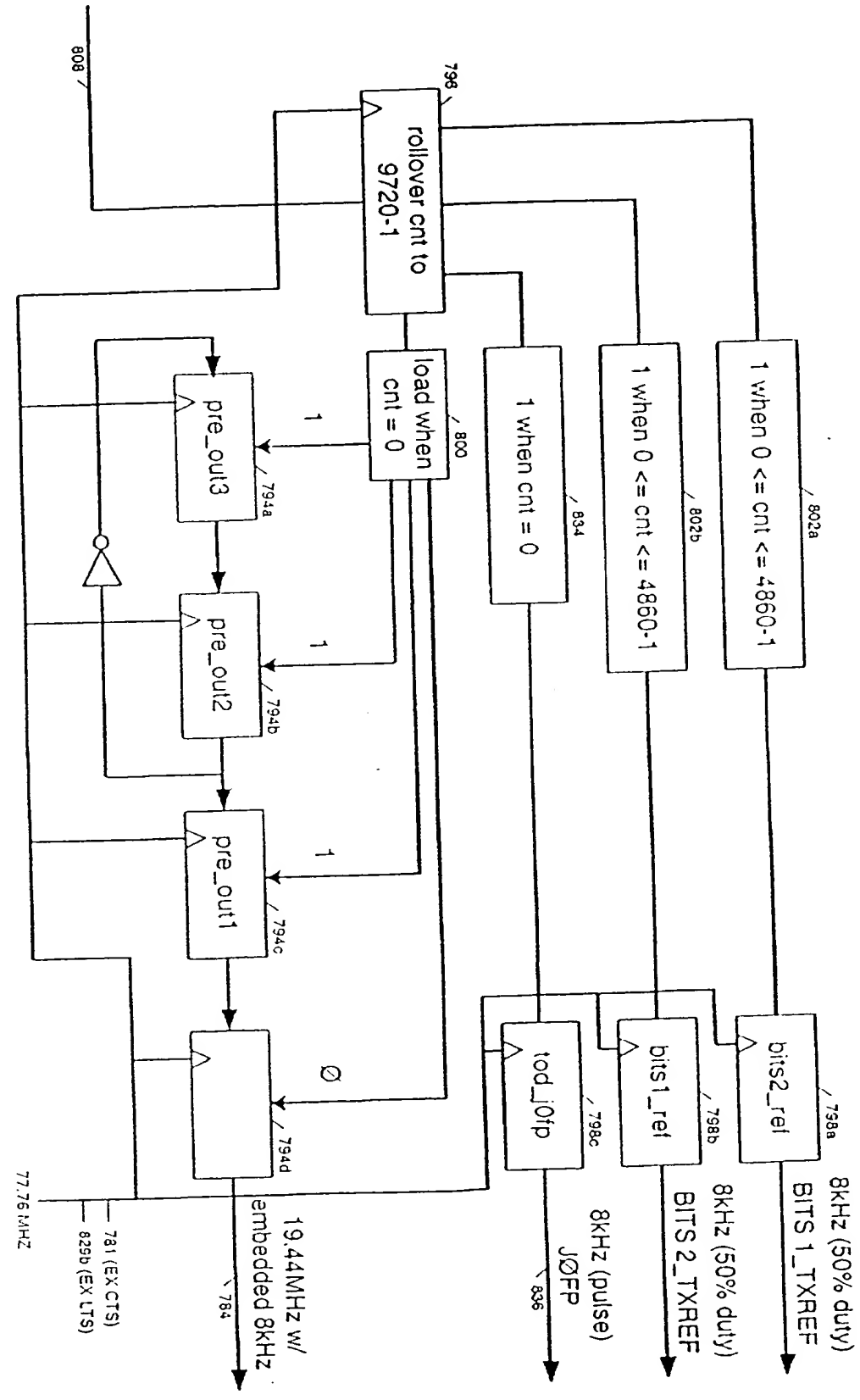

792
808
798
rollover cnt to 9720-1
load when cnt = 0
800
1 when 0 <= cnt <= 4860-1
802a
1 when 0 <= cnt <= 4860-1
802b
1 when cnt = 0
834
pre_out3
794a
pre_out2
794b
pre_out1
794c
794d
1
1
1
Ø
bits2_ref
738a
bits1_ref
798b
tod_j0fp
798c
8kHz (50% duty)
BITS 1_TXREF
8kHz (50% duty)
BITS 2_TXREF
8kHz (pulse)
JØFP
836
19.44MHz w/ embedded 8kHz
784
77.76 MHZ
781 (EX CTS)
829b (EX LTS)

Fig. 52

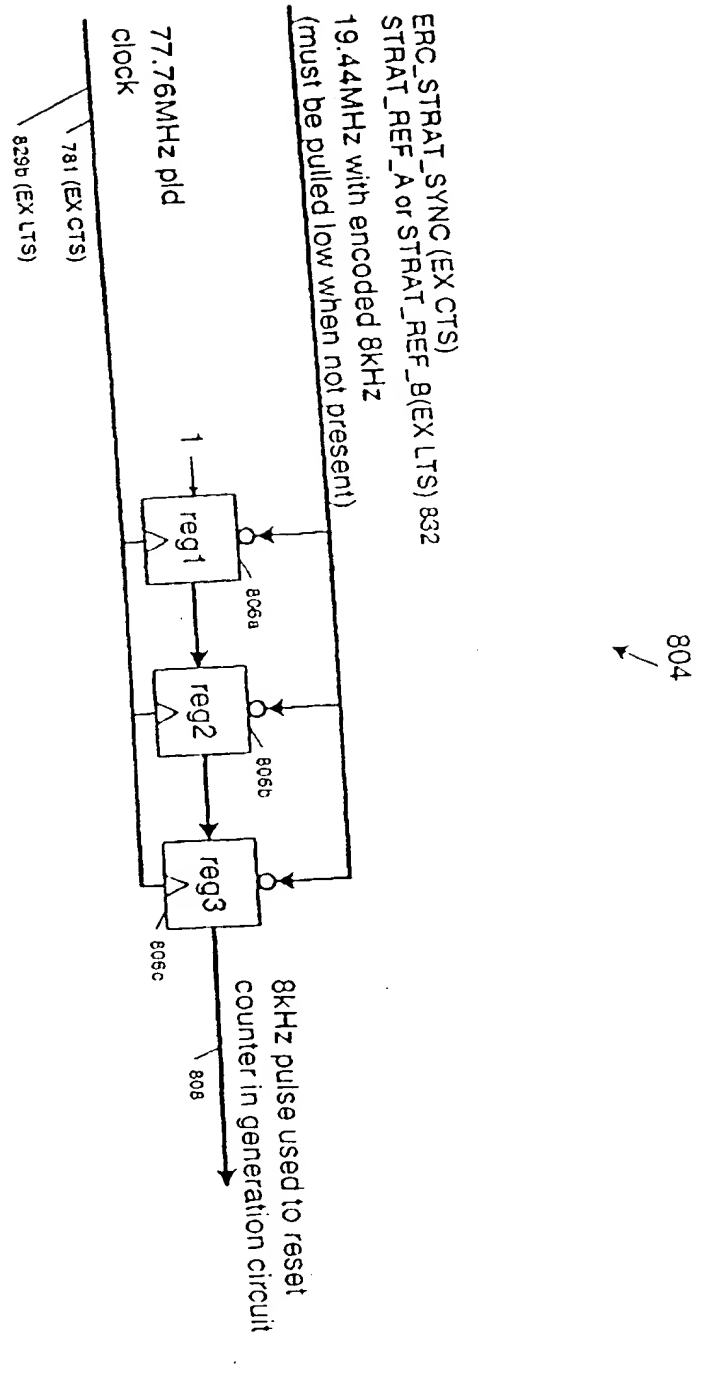


FIG. 53

09543945 - 063400

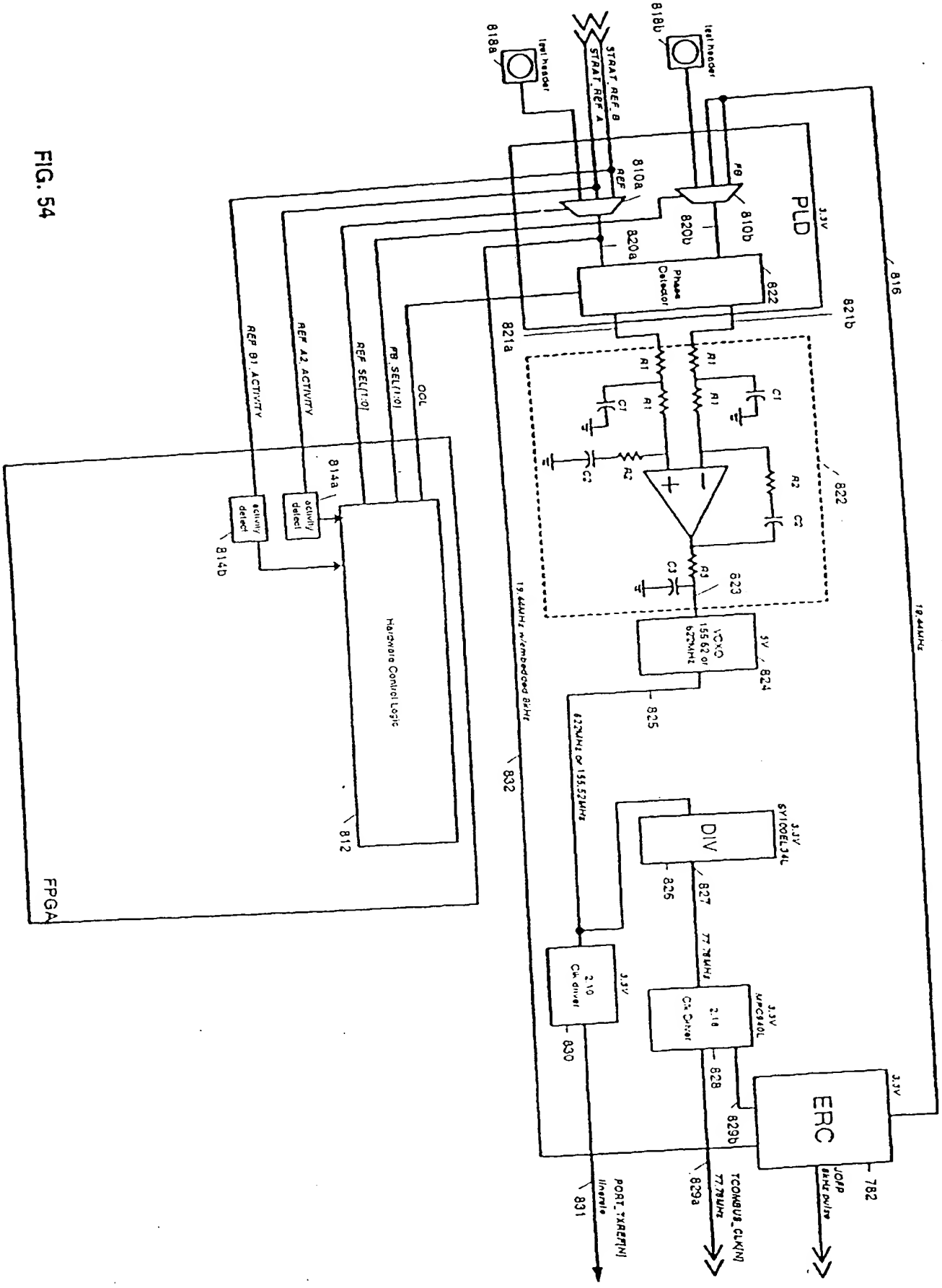


FIG. 54

DESIGN - DESIGN

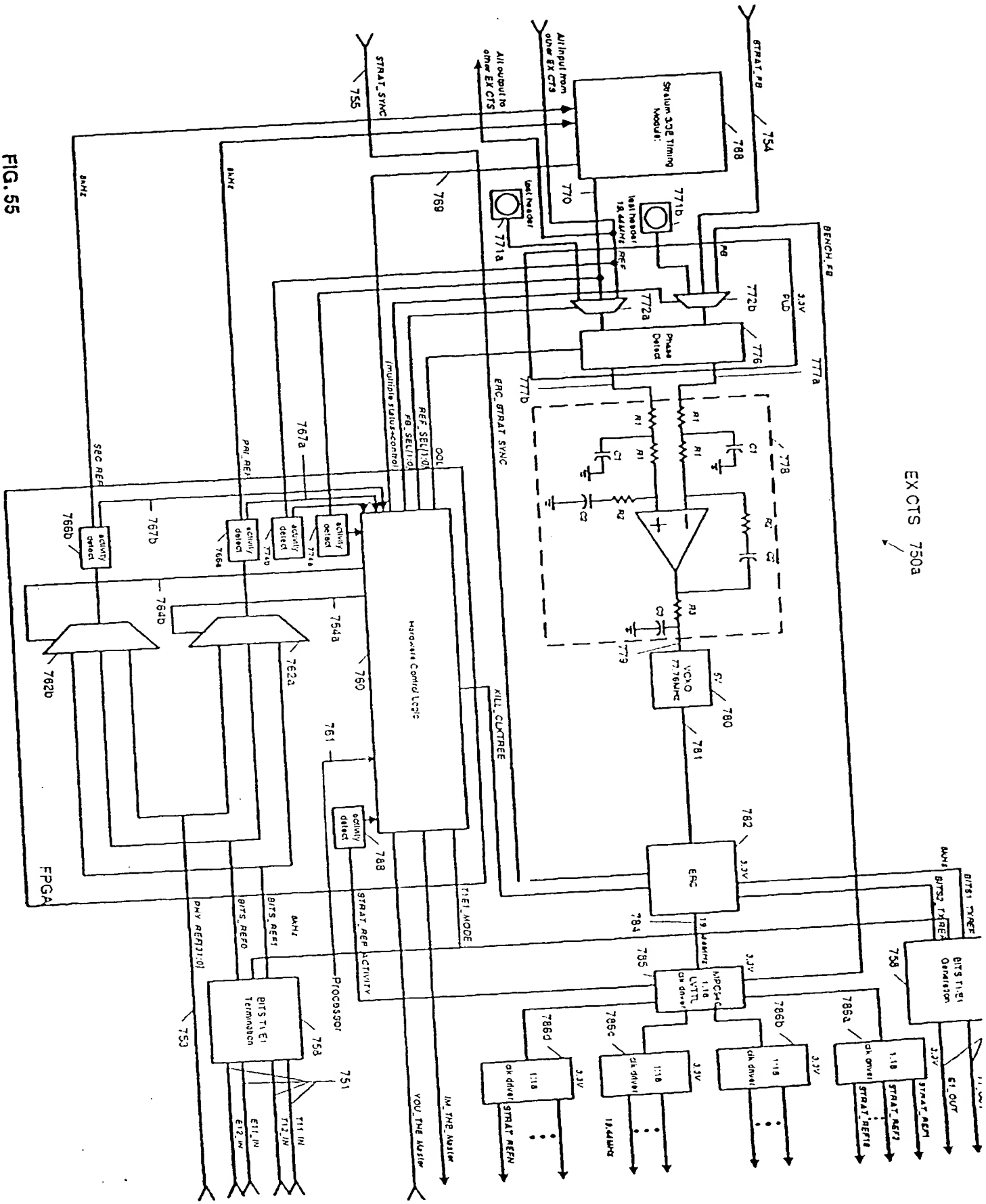

EX CTS 750a
FPGA
Stratum 3/3E Timing Module
754
788
755
STRAT_SYNC
All input from other EX CTS's
All output to other EX CTS
STRAT_FB
769
770
771a
771b
772a
772b
776
777a
777b
778
BENCH_FB
3.3V PLD
Phase Detect
ERC_STRAT SYNC
REF_SEL[1:0]
FB_SEL[1:0]
(multiple status control)
PRI_REF
SEC REF
767a
767b
766b
764a
764b
762a
762b
760
761
Hitless Control Logic
KILL_CLKTREE
VCXO 77.76MHz
5V
780
781
782
ERC
3.3V
784
785
786a
786b
786c
786d
BITS T1/E1 Operation
BITS T1/E1 Termination
Processor
753
751
BITS_REF1
BITS_REF0
PHY_REF[1:0]
STRAT_REF
ACTIVITY
T1/E1_MODE
YOU_THE Master
IM_THE_Master
E1_OUT
T11_IN
T12_IN
E11_IN
E12_IN
activity detect
clk driver
1:18

FIG. 55

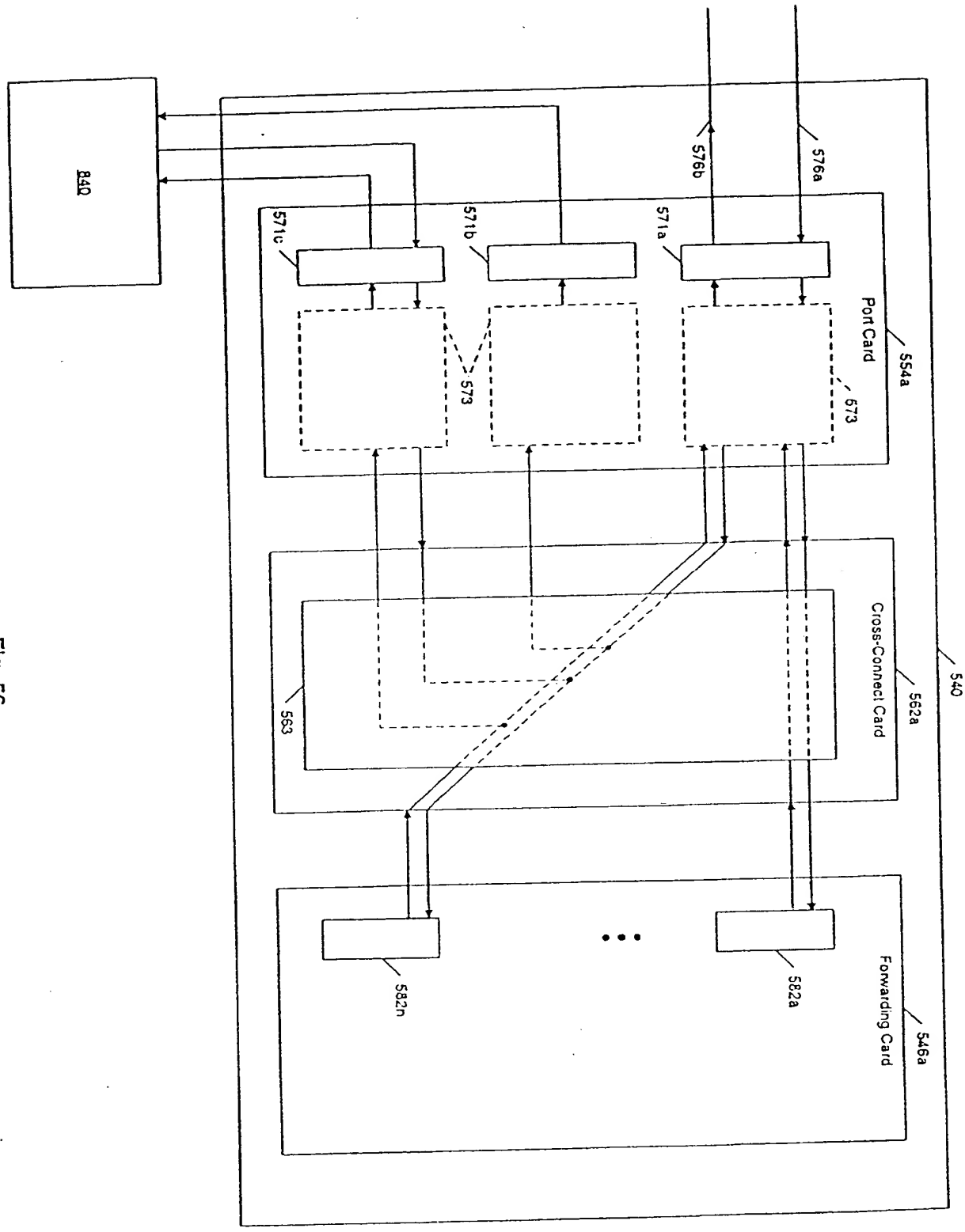


Fig. 56

09654345 - 082400

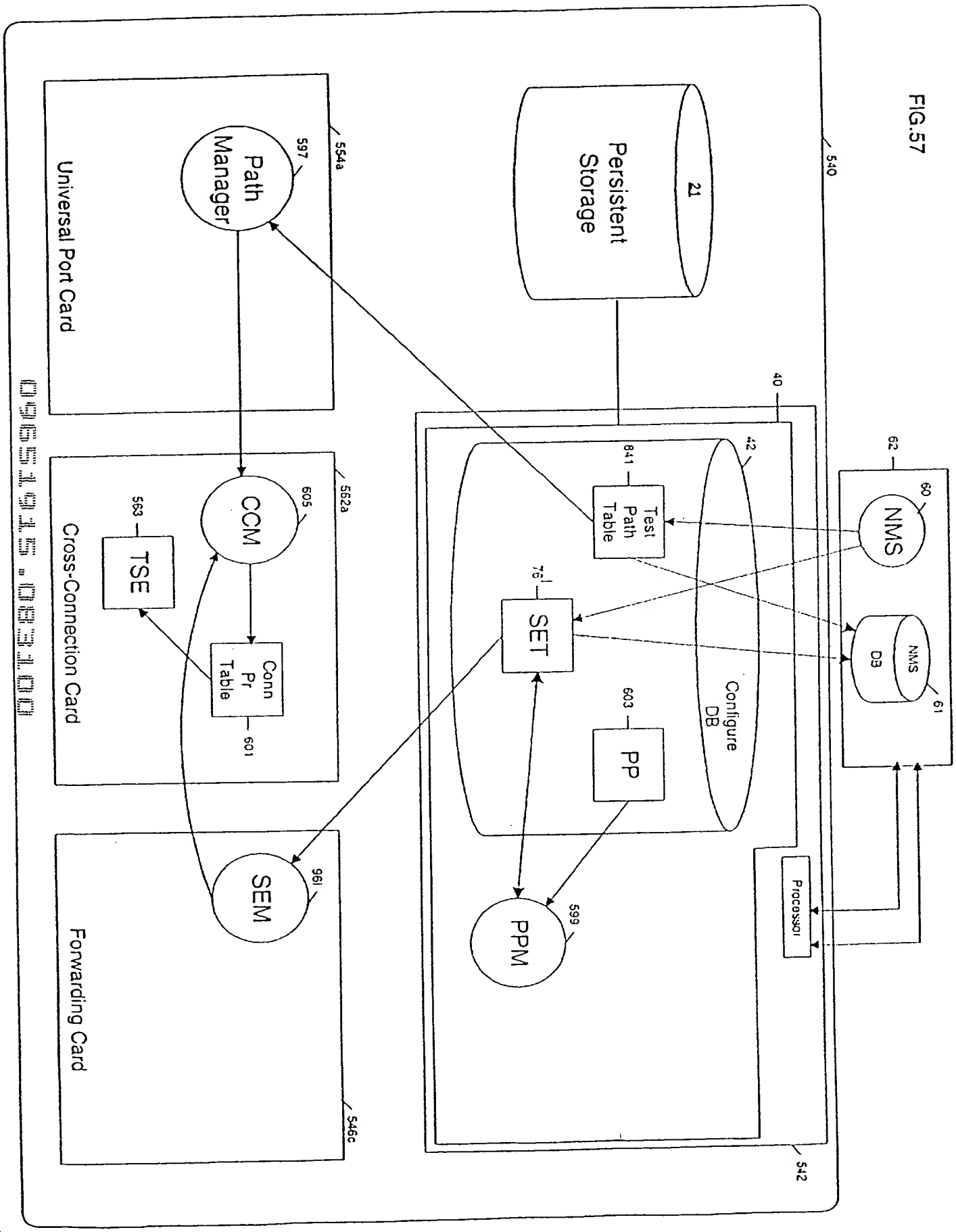


FIG.57

09543545 - 083100

FIG. 58

Test Path Table 841

	Path LID	UP Port LID	Time Slot	# of Time Slots	Monitor (844)	Enable Port Receiver (845)	...
842	1666	1232	4	3	Ingress	No	
843	1666	1233	4	3	Egress	No	
844	1666	1233	4	3	Ingress	Yes	
	⋮	⋮	⋮	⋮			⋮